

Cobb County Emergency Management Agency



Pre-Disaster Mitigation Plan

Version 1.0

**Prepared by Cobb County Emergency
Management Agency**

In Partnership with the Cities of:

Acworth

Austell

Kennesaw

Marietta

Powder Springs

Smyrna

July 18, 2005

Cobb County Pre-Disaster Mitigation Plan

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CHAPTER 1 - INTRODUCTION

The Disaster Mitigation Act of 2000 has provided the impetus for states and local governments to undertake natural hazard mitigation planning since October 30, 2000 when the President signed this Act into law. This law encourages and rewards local and state pre-disaster planning. The intent is to integrate state and local planning with the aim of strengthening statewide mitigation planning.

Historically, it has been proven that the impacts of natural and technological hazards can be reduced, and in some instances avoided altogether, if appropriate mitigation steps are taken before such hazards occur. Through the identification of potential hazards, the vulnerable areas that may be affected, along with the implementation of the appropriate measures aimed at minimizing the exposure, the negative impacts from these hazards can be greatly reduced.

SECTION I – PURPOSE

The purpose of the Cobb County pre-disaster mitigation plan is to document vital information that will aid the process of determining the best options for reducing or eliminating the loss of life and property damage resulting from natural hazards such as floods, earthquakes, and tornadoes, or technological hazards such as dam failures and hazardous material spills.

The Cobb County Pre-disaster Mitigation (PDM) Plan represents the combined efforts of Cobb County, the Cobb County Water System, and the cities of Acworth, Austell, Kennesaw, Marietta, Powder Springs, and Smyrna. They are working together to develop mitigation strategies to reduce the collective risks from both natural and technological hazards.

Cobb County has initiated many proactive efforts regarding hazard mitigation. The Cobb Water System is a good example of Cobb County's proactive, pre-disaster mitigation efforts. The Cobb County Water System's, Storm Water Management Division, between 1999 and 2004, has spent more than \$15 million on land acquisitions within the county flood basins to reduce the threat from flooding. See Appendix A-7. Another good example is the *Cobb County Code*. Sec. 58-69: "Maintenance of special flood hazard areas," and "Division 4: PROVISIONS FOR FLOOD HAZARD REDUCTION, Sec. 58-70: General standards," has strengthened the county's ability to preserve flood water basins. See Appendix A-5. By codifying its intent and purpose into law, Cobb County has demonstrated its commitment and resolve, to mitigate the threat of flooding. This has led to the practice of tying the building permit process to the Cobb Water System. If a building permit is requested for land located in one of the county's flood basins, it is first referred to Storm Water Management Division for review and recommendations. In addition, the county has already received various Homeland Security grants that are complementary to the goals of the PDM Plan. See Appendix B-9.

The PDM Plan will serve as a common repository of useful information that can be referenced by current and future decision makers as they strive to minimize the impact of potential hazards in Cobb County. The PDM Plan is intended to promote stronger and more effective coordination between Cobb County and its six cities regarding hazard mitigation.

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SECTION II-PLANNING METHODOLOGY

The PDM planning process included four phases compatible with the GEMA/FEMA guidelines: organize resources; assess risks; develop mitigation plan; and implement and monitor progress. The process of planning, collecting, and approving information was handled through a Planning Committee, Executive Committee, and seven working groups (one from each of the six Cobb County municipalities, and one representing unincorporated Cobb). The Planning Committee coordinated and collected the information developed by the working groups. The working groups gathered the data used for writing the PDM Plan. The Executive Committee was responsible for final approval of the PDM Plan. A consulting firm, J S Gordon & Associates, Inc., was utilized to facilitate meetings and coordinate the writing of the PDM Plan. The information was gathered from print, online sources, and worksheets. See Appendix D. Public hearings were also held in an effort to solicit input from Cobb County residents.

Planning Committee

The planning committee was responsible for development of the PDM Plan. Membership included Cobb Emergency Management Agency (EMA) staff, the PDM consultant, and a representative from each of the municipality working groups.

Working Groups

For planning and information gathering purposes, Cobb County was divided into seven sections with one working group for each. Unincorporated Cobb (including Cobb County Government agencies) *and* each Cobb city (Acworth, Austell, Kennesaw, Marietta, Powder Springs, and Smyrna) established separate working groups that contributed to the PDM Plan. County employees from functional areas that provide services for specific cities contributed to municipality workgroups. For example, the cities of Acworth, Kennesaw, and Powder Springs do not have their own fire departments and rely on the county to provide fire services. Therefore, the county provided input into these cities' working groups. For Cobb, this proved to be the most efficient and effective approach for preparing the PDM Plan.

The following agencies/departments/organizations provided specific information and support for the county/municipality workgroups:

- Cobb County School District and Marietta City School System was responsible for providing structural replacement and content values for all schools as well as square footage and occupancy limits. See references in Appendix E.
- Police Departments of Acworth, Austell, Cobb County, Kennesaw, Powder Springs, and Smyrna, and Cobb County Sheriff's Office, provided staff support to the PDM planning effort.
- Fire Departments of Austell, Cobb County, Marietta, and Smyrna provided staff support to the PDM planning effort and assisted with identifying occupancy limits for some of the critical structures. See Appendix B-5. The Cobb County HAZMAT Teams, part of the Cobb Fire Department, provided data about hazardous material spills and gave input for the HAZMAT mitigation strategies. See Chapters 3 & 5.
- Cobb County Community Development Department provided demographic sources such as the 2004 Cobb Data Book (See Appendix C) and the Future Land Use Map. See Appendix A-8a.

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- Cobb County Finance Department provided information about Cobb government buildings including their respective replacement and content values, and square footages. See reference in Appendix E.
- Cobb County Tax Assessor's Office provided most of the aggregate values for the critical structures. The valuations had to be converted to full values since they are figured at 40% of actual value. This information, combined with the Cobb demographic data, is compiled on GEMA Worksheet #3a. See Appendix B-4.
- Cobb County Geographical Information System (GIS) Department produced most of the maps contained in the PDM Plan. They initially created a new base map that located critical facilities. They also produced maps for the Cobb Water Systems that include the FEMA 100 Year Flood Plan and include the locations of dams in Cobb County. See Appendix A-8c. They also produced maps of Cobb's Flood Damage Sites. See Appendix A-8b.
- Cobb County Emergency 911 and the 911 Centers of Austell, Kennesaw, and Smyrna will play an increasing role in hazard mitigation. For example, Cobb County Emergency 911 will begin using reverse 911 calling capabilities. Combined with GIS, this will provide area specific alerts calling hazards occur in the county.
- Cobb County Public Health Department will become more active in hazard mitigation as part of the county's public awareness initiatives.
- Cobb County Building Code Enforcement Section works closely with the Cobb Water System regarding flood mitigation. Requests for building permits on land in one of Cobb's flood basins are automatically deferred until the Cobb Water System has had a chance to review the permit application and make recommendations.
- Cobb County Water System, Storm Water Management Division (SWMD) is responsible for dealing with flood mitigation in the unincorporated portions of the county. SWMD has prepared a current Flood Mitigation Plan that is being submitted to GEMA in conjunction with the PDM Plan. SWMD has developed a Flood Mitigation Matrix that has been distributed to each of the Cobb cities as a tool for their respective PDM planners. The PDM planning process augments the FMP process by also working directly with the cities of Acworth, Austell, Kennesaw, Marietta, Powder Springs, and Smyrna regarding flood mitigation.

The following agencies/departments/organizations provided representation for the county/municipality workgroups:

- American Red Cross
- Georgia Power
- Atlanta Gas
- Cobb Electrical Membership Corporation (EMA)
- Cobb County Private Schools
- National Weather Service
- Norfolk Southern Railroad
- Yellow Freight
- CSX Railroad
- Greystone Power
- Watkins Truck Lines
- Cobb Citizen Corps
- Cobb Local Emergency Planning Committee

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The initial PDM meeting was held on September 29, 2004. Various workgroup meetings were conducted through February 2005. See Appendix D. The city workgroups focused on identifying critical assets and local flood mitigation issues.

In preparation for meetings with PDM planners from each of the city workgroups, the following agenda was prepared and followed during the series of meetings:

- Review the status of all PDM planning work to date
- Receive any additional completed work products for inclusion in the PDM Plan
- Review remaining PDM work tasks needing to be completed
- Set agreed upon completion dates for remaining work
- Set three dates in January for the Executive Committee to review the PDM Plan
- Solicit any additional agenda items for Executive Committee meetings
- Request assistance promoting two scheduled PDM public meetings
- Distribute draft sections of the PDM Plan for review (e.g. Critical Inventory data)
- Solicit additional information from cities regarding flood mitigation issues

Meetings with the City of Acworth, during the month of January, included Cobb EMA staff, the consultant, and L. A. Schwein of the Acworth Police Department.

Meetings with the City of Austell, during the month of January, included Cobb EMA staff, the consultant, and Mr. Young Malcom of the Austell Fire Department.

Meetings with the City of Kennesaw, during the month of January, included Cobb EMA staff, the consultant, Mr. L. Steve Kennedy-Kennesaw City Manager, and William Westenberger, Asst. Chief of Police.

Meetings with the City of Marietta, during the month of January, included Cobb EMA staff, the consultant, Deputy Chief Dan Rackley and Lt. Scott Dobbins of the Marietta Fire Department.

Meetings with the City of Powder Springs, during the month of January, included Cobb EMA staff, the consultant, and Lee Gragg of the Powder Springs Code Enforcement Department.

Meetings with the City of Smyrna, during the month of January, included Cobb EMA staff, the consultant, and Ken Doty of the Smyrna Emergency Management Agency.

Meetings with the Cobb Water System (CWS), Storm Water Management Division (SWMD), during the month of January, included Cobb EMA Staff, consultant, and Mr. Bill Higgins of the SWMD to review and discuss the SWMD Flood Mitigation Plan that is being submitted in conjunction with the PDM Plan. The role of the PDM planning includes close coordination with the SWMD regarding the FMP and all flood mitigation goals submitted by each of the cities and Cobb County.

The Cobb County PDM Plan is based on research from a variety of sources, including FEMA hazard information reports, various Cobb County government agencies' data (Community Development, Finance, Tax Assessor, Fire, GIS, Planning, Police, Cobb School District, and Water), as well as data from the cities of Acworth, Austell,

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Kennesaw, Marietta, Powder Springs, and Smyrna. Additional sources included the National Climatic Data Center (NCDC), National Weather Service, Georgia Department of Natural Resources, and the Georgia Tornado Database. Several local plans from Cobb County were reviewed and incorporated into the PDM planning process as appropriate. These included the *Cobb County EMA Local Emergency Operations Plan*, the *2004 Cobb Data Book*, and the *Cobb Water System, Storm Water Management Division Flood Mitigation Plan*. These plans are too large to include in the printed version but are included in the digital CD version of this Plan. See Appendix C.

Executive Committee

The Executive Committee was made up of one representative from each city (Acworth, Austell, Kennesaw, Marietta, Powder Springs, and Smyrna) as well as Cobb County. Members were senior personnel from their respective fire, police, or other governmental agencies. See Appendix D. Each representative was responsible for ensuring that the PDM information from their respective jurisdictions was provided in the planning process. The committee was responsible for reviewing and approving the PDM Plan prior to submission to city and county executives. The Executive Committee met three times (January 18, 25, and 31, 2005) to conduct a formal review process. This ensured the highest level of participation and consensus for the PDM Plan prior to submitting it. Additional information on Executive Committee meetings is found in Appendix D. Informal meetings were held with individual members of the Executive Committee during the month of January to obtain and finalize critical facility data. See Appendix B-5. The required Field Data Collection Forms are maintained by Cobb EMA. Upon completion of the PDM Plan, each member is responsible for submitting the plan for approval and adoption by the respective jurisdictions.

GEMA Worksheet #3a was used to determine the proportion of buildings, the value of buildings, and the population in our community that is located in hazard areas. This information can now be used to project hazard event profiles by calculating expected losses from specific hazard events. This information can be used to calculate potential losses in terms of people, buildings, and dollar amounts by changing the values in the “% in Hazard Area” columns. A compilation of all GEMA #3a Worksheets pertaining to each hazard is found in Appendix B-4.

Various historical records, existing plans, reports, and other relevant information from Internet Websites were reviewed in order to identify the significant natural and technological hazards that may affect Cobb County and its member cities. A historical listing of natural hazards, comprised mostly of NCDC data, is found in Appendix B-3. A Hazard Frequency Table that gives the historical rate of occurrence is found in Appendix A-2. Various mitigation goals, objectives and related action steps were developed and analyzed for each hazard. This information was the basis for establishing mitigation priorities within the county. Natural hazard goals, objectives, and mitigation action item items are found in Chapter Four of the PDM Plan with comparable information about Technological hazards found in Chapter Five.

Two public hearings to solicit public input were held while the PDM Plan was being developed. Public announcements preceded each of the meetings that were conducted on January 11 and 25, 2005. While there was no public input forthcoming from these meetings, efforts to solicit public input will continue during future PDM public awareness initiatives. Appendix E includes the sign-in sheets and PDM materials brought to these

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meetings. Upon approval by GEMA of the PDM Plan, an additional public meeting will be announced and scheduled to introduce the plan to the public.

The PDM Plan is a “living document” and is required to be reviewed annually and updated at least every five years. Cobb County has established a policy of reviewing the PDM Plan every six months to include new or improved mitigation strategies or relevant changes. See Appendix E.

SECTION III – PLAN ORGANIZATION

The Cobb County PDM Plan is organized as follows:

- Table of Contents provides the outline of the PDM Plan
- Chapter 1 provides an overview of the PDM Plan
- Chapters 2 and 3 are the *Hazard, Risk, Vulnerability Assessment* sections of the PDM Plan for *Natural* (Chapter 2) and *Technological* hazards (Chapter 3) that historically have the highest probability of occurrence
- Chapters 4 and 5 relate these hazards to issues such as vulnerability and potential loss. Chapters 4 (Natural hazards) and 5 (Technological hazards) present specific mitigation goals, objectives, and related mitigation actions. Potential funding sources to support continued development of mitigation capabilities for Cobb County and each of the six cities are also identified. The “Alternative Mitigation Actions” identified in Chapters 4 and 5, organized by Objective and Goal on GEMA Worksheet #6, are found in Appendix B-6. The prioritization of these Mitigation Actions, on GEMA Worksheet #8, is found in Appendix B-7.
- Chapter 6 describes how the PDM Plan will be implemented and maintained over the next five years, and the Conclusion in Chapter 7 contains a summary and wrap-up of the PDM Plan.

The appendix information contains reference materials, data sets, maps, GEMA Worksheet information, and other materials that support the PDM Plan. Appendix A and Appendix B begin with an overview of the respective information contained in each. Appendix C contains the *2004 Cobb Data Book*, *Cobb EMA LEOP*, and the *Cobb Flood Mitigation Plan*. Appendix D contains PDM meeting documentation and materials. Appendix E contains the PDM reference list.

The PDM planning process is programmed to continue for at least the next five years during the *Implementation* and *Maintenance* phases. The PDM planning structure has strengthened inter/intra governmental working relationships which will ultimately help support the implementation and maintenance of the PDM Plan.

SECTION IV – HAZARD, RISK, AND VULNERABILITY (HRV) ASSESSMENT

A Hazard, Risk and Vulnerability assessment was accomplished by first reviewing historical data on specific hazards occurring in Cobb County. Whenever possible, hazard locations and corresponding property values were identified along with an analysis of the potential risk to life, property and the environment. The following steps were taken to accomplish the HRV assessment:

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Inventorying Critical Facilities Inventory

Critical facilities are important because these entities provide essential products and services to the public that are necessary to preserve the welfare and quality of life in the county. In addition, these facilities support important public safety, emergency response, and/or disaster recovery functions. Cobb County critical facilities have been identified and mapped. A spreadsheet containing this data, based on the data initially captured on the individual "Field Data Collection Forms," is found in Appendix B-5. Appendix A-8a includes a map produced for PDM planners by Cobb GIS that identifies critical facilities in the county.

Hazard Identification

The Planning Committee examined the types of natural and technological hazards that affect Cobb County. When possible, maps and historical data sources were studied and reviewed in order to identify the geographic extent, intensity, and probability of occurrence for various hazard events. The Planning Committee ultimately identified nine significant hazards (seven natural, two technological) that either affect, or could potential affect Cobb County and its six cities. Since historical hazard data is often a good indication of what may happen, a comprehensive hazard history for Cobb County is provided in Appendix B-3. This natural hazard listing is comprised of NCDL data. In the digital version of this plan, each listed hazard includes the appropriate web link for that specific event in the NCDL on-line database.

Profiling Hazard Events

The causes and characteristics of each hazard were analyzed to determine how it has affected Cobb County in the past. This included assessing what part of Cobb County's population and infrastructure has historically been vulnerable to each specific hazard. Reviews of each hazard addressed in this plan are located in Chapters 2 (Natural) and 3 (Technological). The following characteristics were used to examine each hazard before selecting them for inclusion in the PDM Plan:

- The probability that the hazard will impact an area
- The potential severity of the hazard
- Where the hazard might affect a given area
- Local conditions that might increase or decrease the effect of the hazard

Cobb County Government includes a strong GIS department that produced numerous map products to support the PDM initiative. The maps are located in Appendix A-8a-c, and are explained in the Appendix A Overview that introduces the appendix.

Vulnerability Assessment

This step was accomplished by comparing each previously identified hazard with the inventory of affected critical facilities and population exposed to each hazard. With the exception of the flood hazard, PDM planners could not find any substantial data to support differences in vulnerability between the county and the six Cobb cities. GEMA Worksheet #3a was first used to present the aggregate information for each hazard. These worksheets were then compiled into one eight page document. See Appendix B-4. The data for this form included the numbers of the various types or structures, the dollar value of the structures, and a breakdown of the various population numbers. The

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information was obtained from the Cobb Finance Department, Tax Assessor's Office, Cobb School District, and Cobb Department of Community Development.

Estimating Losses

Using the best available data, this step involved estimating damage and financial losses likely to be sustained in a geographic area. However, there is no substantial data to support differentiating the unincorporated county from the six Cobb cities. Describing vulnerability in terms of dollar losses provides the PDM Plan with a common framework to measure the effects of hazards on critical facilities. The Cobb Fire Department was cited as an example to illustrate the process for combining structure loss, content loss, and function loss. They are examined at intervals of 25 percent, 50 percent, 75 percent and 100 percent. Cobb Fire Department's annual operating budget was used as the basis for determining functional loss values. See Appendix B-8. Aggregate loss information based on vulnerability assessments is detailed on GEMA Worksheet #3a. See Appendix B-4. Different loss estimates based on this data can be adjusted by simply changing the values in the "*% in Hazard Area*" column and recalculating. Individual replacement values for structures and contents are based on the original Field Data Collection Forms and detailed in Appendix B-5.

SECTION V – MITIGATION GOALS AND OBJECTIVES

Chapters 4 and 5 present the mitigation goals, objectives and actions for natural and technological hazards respectively. The Planning Committee used the results of the hazard, risk and vulnerability assessment to identify and prioritize the relevant mitigation goals, objectives and related action items. Goals were written as general guidelines to explain in a broad sense what needs to be mitigated. Objectives were written to define strategies or implementation steps needed to attain the identified goals. Unlike goals, objectives are specific and measurable. Mitigation actions are used to describe the specific actions needed to achieve the goals and objectives. Each mitigation goal identifies an organization or agency responsible for initiating the required action steps. Coordinating organizations are public agencies with regulatory responsibility to address hazards, or organizations that are willing and able to organize resources, locate and secure appropriate funding, or oversee activity, implementation, monitoring, and evaluation.

Each mitigation goal identifies the specific objectives for attaining the goal, as well as the proposed actions required to achieve it. In the Flood Mitigation section of Chapter 4, maps were inserted, when possible, for specific targeted locations. In the Chapter 2 Flood section, there are maps of each Cobb city that depict their respective flood zones. These maps were extracted from the countywide FEMA Flood Insurance Map. Potentially required resources are also identified and may include a combination of proposed grant proposals, county/city funding, and human resources.

Each mitigation action also identifies an estimated timeline for implementation when possible. The hazard mitigation sections of the PDM Plan also identify the range of mitigation actions considered necessary to reduce the detrimental effects of each hazard. These actions range from informational campaigns focused on public education and awareness to construction projects designed to protect specific buildings and infrastructure. The strategy is multi-jurisdictional in that it includes the county's six cities of Acworth, Austell, Kennesaw, Marietta, Powder Springs, and Smyrna. A compilation of

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the alternative mitigation actions is found in Appendix B-6 organized by individual objective and goal. The prioritization of all of the mitigation actions is found in Appendix B-7. The criteria used by the Planning Committee to prioritize mitigation actions were:

- The probability that the hazard will impact an area
- The potential severity of the hazard and
- Cost benefit

SECTION VI – MULTI-JURISDICTIONAL CONSIDERATIONS

The cities of Acworth, Austell, Kennesaw, Marietta, Powder Springs, and Smyrna were participants in the planning process. They were responsible for identifying the critical infrastructure inside their respective cities (*did not include Cobb County Government assets such as schools and other county structures*) and identifying mitigation goals, objectives, and specific action items relevant to their individual municipalities. Each Cobb city ended up focusing on their potential flooding hazard. The Storm Water Management Division developed a Flood Mitigation Matrix as a tool to assist PDM planners. Chapter 4, *Flood* section, includes all flood mitigation recommendations for both unincorporated Cobb County and the six cities.

Each Cobb city also had a representative on the Executive Subcommittee that was responsible for reviewing all PDM related work. The six city representatives on the Executive Subcommittee are also responsible for taking the PDM Plan through their respective political processes to get the plan adopted, once it is approved by GEMA.

SECTION VII – PLAN IMPLEMENTATION & MAINTENANCE

The Cobb County Board of Commissioners will be responsible for formally adopting the Cobb County PDM Plan once it has been approved by GEMA. Each of the county's six cities is committed to follow suit. The PDM Planning Committee will be available to work with appropriate county and local officials responsible for implementation of plan action items. The PDM Plan will be reviewed annually and updated every five years. This process is also true for the Water System's Flood Mitigation Plan (FMP).

The Plan Maintenance process will ensure that the Cobb County PDM Plan remains an active and relevant document. The plan maintenance process includes monitoring and evaluating the plan annually, and producing a plan revision at least every five years. Additionally Cobb County will develop steps to ensure public participation throughout the plan maintenance period. Cobb County and its six cities will incorporate the mitigation strategies identified in this plan into other relevant planning documents such as the Cobb County Comprehensive Plan, 2004 Cobb County Data Book, and Emergency Operations Plan (EOP), and the Cobb County Water System's Flood Mitigation Plan.

Implementation strategy for the PDM Plan will also include participating in as many existing programs as feasible. Cobb County Police, Fire, and EMA already have various programs that are complimentary to the goals of pre-disaster mitigation. Some of these programs include: Public Safety Explorers, Public Safety Citizen Academy, Neighborhood Safety Commission, Citizen Corps Council, and Citizen Emergency Response Team (CERT). The Water System also conducts community programs that include flood related issues. In addition, Cobb's TV23/Communications runs continual public service type programming.

CHAPTER 2 – NATURAL HAZARD, RISK AND VULNERABILITY (HRV) SUMMARY

SECTION I – FLOODS

Hazard Description

Floods are the most common and widespread of all natural disasters--except fire. Most communities in the United States can experience some kind of flooding after spring rains, heavy thunderstorms, or winter snow thaws. The Hazard Frequency Table indicates that 1.8 floods will occur each year in Cobb County. This is based on a historical review of NCDC weather data for the past ten years. See Appendix A-2. The NCDC-based historical list of natural hazard occurrences in Cobb County is located in Appendix B-3.

A flood, as defined by the National Flood Insurance Program is "A general and temporary condition of partial or complete inundation of two or more acres of normally dry land area or of two or more properties (at least one of which is your property) from:

- Overflow of inland or tidal waters
- Unusual and rapid accumulation or runoff of surface waters from any source or
- A mudflow"

Floods can develop slowly or rapidly rising but generally develop over a period of days. Mitigation includes any activities that prevent an emergency, reduce the chance of an emergency happening, or lessen the damaging effects of an unavoidable emergency. Investing in mitigation steps such as floodplain management activities, constructing barriers (levees), and purchasing flood insurance will help reduce the amount of structural damage to homes and help reduce financial loss from building and crop damage should a flash flood occur.

Hazard Identification

The Cobb County Water System, Storm Water Management Division (SWMD), has developed a comprehensive Flood Mitigation Plan (FMP). Their FMP is being submitted in conjunction with the PDM Plan. A primary objective of the PDM Plan is to coordinate with the SWMD in developing flood mitigation strategies submitted by the six Cobb cities and the unincorporated county as part of the PDM planning process. The FMP contains hazard mitigation information useful to the local jurisdictions in Cobb. While its past focus of flood mitigation has been the unincorporated Cobb County, SWMD is currently working directly with PDM planners to assist in identifying flood related hazard areas inside their respective jurisdictions in developing their respective goals, objectives, and action items for the PDM Plan. To accomplish this, SWMD has created a Flood Mitigation Matrix (FMM) tool for use by PDM planners in developing flood mitigation goals. The FMM is located in Appendix A-1 and the Flood Mitigation section of Chapter 4. City-specific mitigation goals are included in Chapter 4, the Flood Mitigation section. To review the FMP, refer to Appendix C-3 in the digital version of the PDM Plan.

Through studies of previous flooding losses and Cobb County basin-wide studies, Cobb has compiled a database of known flood hazard areas. Many of the maps require a computer and the PDF viewer software to appreciate the map's detail. Essentially, these are general reference maps that were useful during the current PDM planning process

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and will be useful during future updates of the PDM Plan. Each of the six Cobb cities received a full set of the maps included in the PDM Plan.

PDM Maps include:

- Appendix A-8b
 - Flood damage sites
- Appendix A-8c
 - Cobb floodplain map
 - Cobb floodplain broken down into 25 separate tiles
 - Dam locations in Cobb County
- Chapter 4, Section I (Floods)
 - Map clips illustrating specific locations for proposed mitigation actions

Over 20% of Cobb County is floodplain. Flood plains in their natural, undisturbed and undeveloped state provide storage of floodwaters, silt retention, and allow for gradual groundwater recharge. Intense rainfall events in excess of four inches, occurring in less than two hours, and even moderate rainfalls exceeding one inch per hour over extended periods of time, may subject to flooding roadways, low-lying commercial properties, and certain low lying private residences.

Cold frontal boundaries moving down from Canada into the Midwest and into Cobb County during the early spring frequently collide with warm fronts moving north into Cobb County from the Gulf of Mexico. These collisions can spawn intense thunderstorms as well as tornadoes. These storms commonly occur in late February or early March and can produce severe flooding. Thunderstorms can also occur in late June, July or August when orthographic lifting of water vapor during the summer heat transforms into powerful thunderstorms locally referred to as “*thunderboomers*.” “*Thunderboomers*” can be particularly hazardous because they are often stationary versus the rapidly moving frontal storms. When these powerful thunderstorm cells “stall,” they can dump massive amounts of rainfall to specific areas in a short period of time.

According to the FMP, the majority of the Cobb flood hazards are concentrated in four areas:

- Sweetwater Creek Basin in southwest Cobb. See the *Hopkins Road, Casteel Road, and Lindsey Drive* maps in Appendix A-8b, and Chapter 6 of the FMP, for additional information.
- Areas along the Chattahoochee River – Cobb’s eastern boundary. See the *Columns Drive* and *Cochise_ Farmington_Paces_Manom* maps in Appendix A-8b. Also see Chapter 6 of the FMP, for additional information.
- Sope Creek flowing from the northwest to the Chattahoochee River. See the *Weatherstone* and the *Fox_Hills_Indian_Hills* maps in Appendix A-8b, and Chapter 6 of the FMP for additional information.
- Noonday Creek flowing through northwest Cobb to Cherokee County before entering Lake Allatoona. See the *Leasa_Court and Rio_Montana* and the *Piedmont_Hills_Subdivision*, maps in Appendix A-8b, and Chapter 6 of the FMP for additional information.

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The City of Smyrna has identified Hyland Drive as the target of flood mitigation strategies while the City of Kennesaw has identified the following areas: Kennesaw Station Drive; Foret Drive; Jiles Road at N. Cobb Parkway; McCollum Parkway near Big Shanty Road; Shillings Chase Drive; Wellsly Court; and Legacy Park Circle near Madison Main. These locations are mapped in Chapter 4 of the PDM Plan. Maps depicting flood prone areas of Acworth, Austell, Kennesaw, Marietta, Powder Springs, and Smyrna are found in the Flood section of Chapter 2.

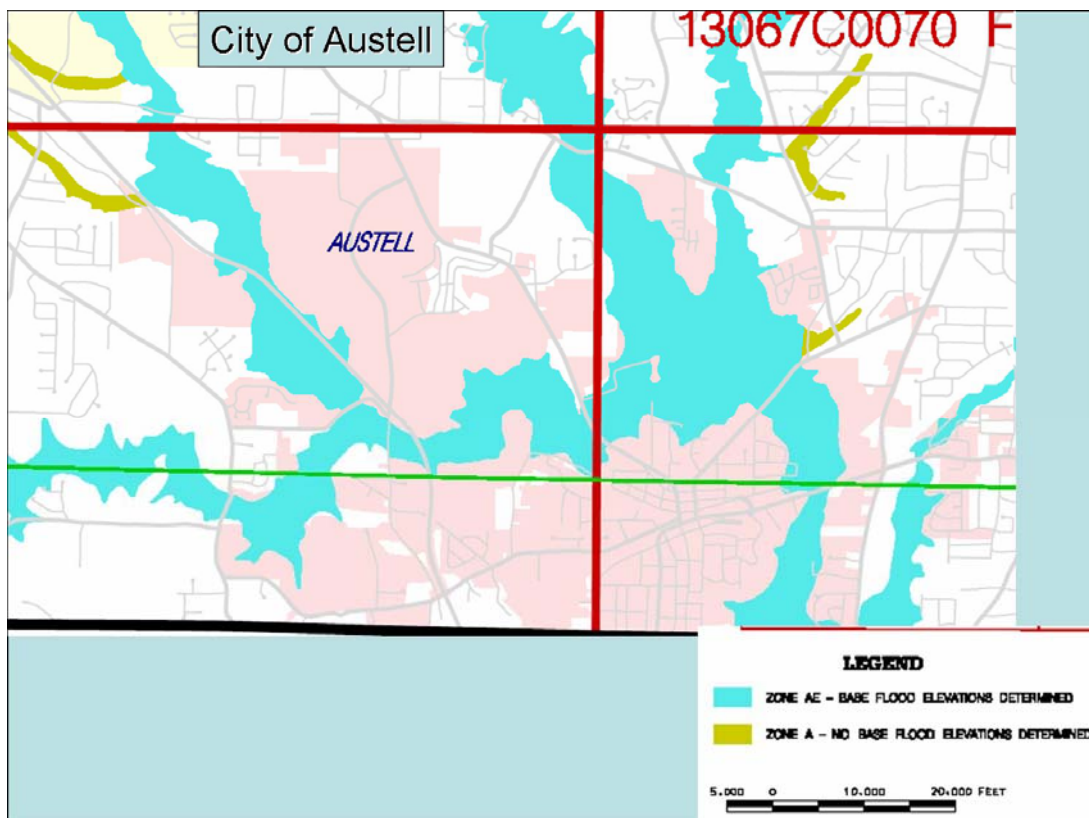
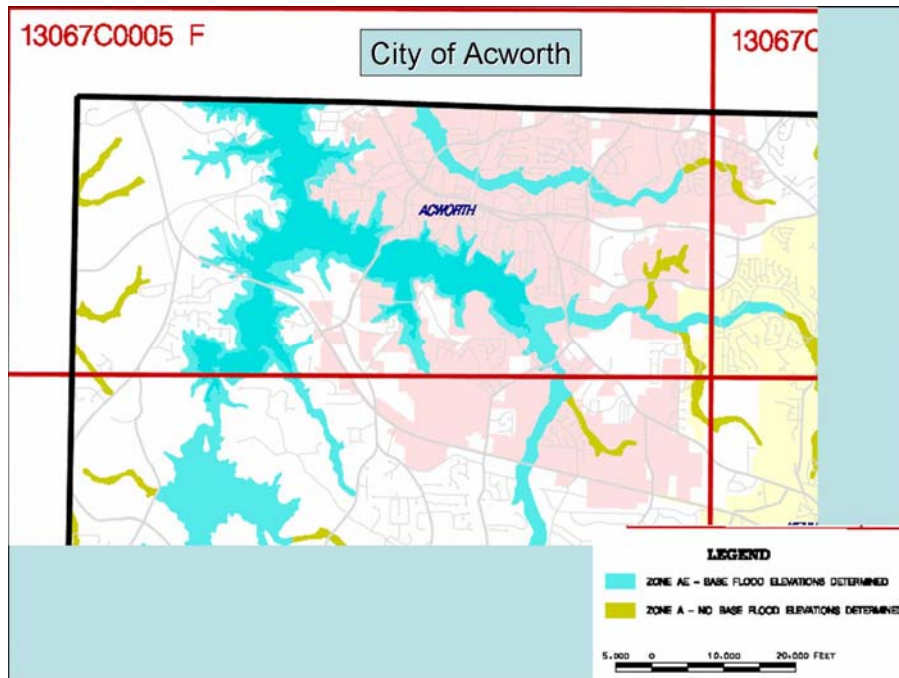
Hazard Profile

According to the Cobb Water System's Storm Water Management Division's FMP, flooding may occur slowly, but most often it occurs quickly in Cobb County. During a flash flood there is usually little time to warn affected residents. Summer thunderstorms can cause serious flooding. For example, on June 28, 1999, a thunderstorm dumped five inches of rainfall over a two hour period in southern Cobb County. This storm occurred in the vicinity of Hurt Road, Powder Springs Road, Traemore Park, and the East-West Connector. Within only a 1 ½ mile radius, the storm caused flooding to 154 homes in Cobb County.

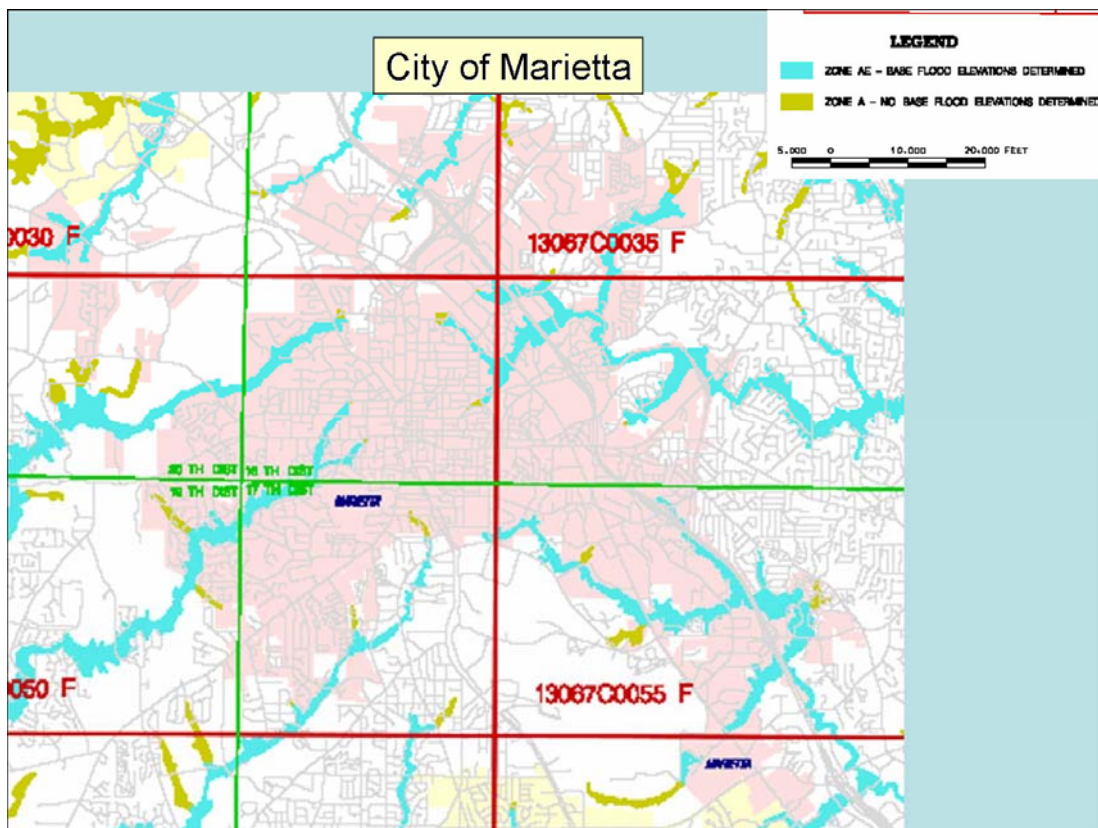
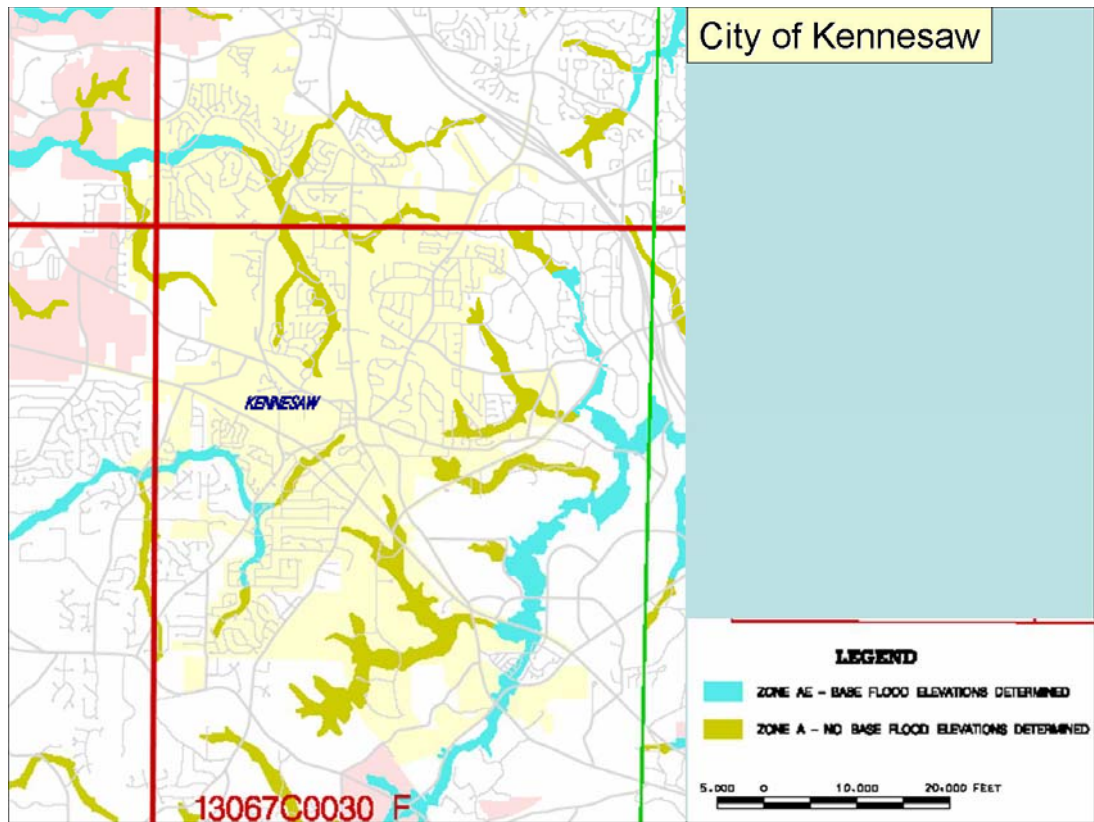
The largest storm of this kind occurred on July 7, 1989. It affected northern Cobb County in the vicinity of Kennesaw College, Wooten Lake Road, Bells Ferry and Chastain Road, Chestnut Hills Subdivision off of Bells Ferry Road, and Tate Creek. This storm dumped nine inches of rainfall over a 13 hour period. Appendix B-3 provides a historical listing of weather events in Cobb County. In the digital version of the plan, each record includes a web link to the specific event record in the NCDC database.

The following six maps depict the FEMA 100 Year Flood Plain, Zones AE and A for each of the six Cobb cities of: Acworth Austell, Kennesaw, Marietta, Powder Springs, and Smyrna. They were extracted from the county-wide Flood Insurance Map located in Appendix A-8b. These maps provide a baseline for current and future flood mitigation actions by each city. Appendix A-8 also includes a basic flood map and report that was generated using the GEMA/ITOS online critical infrastructure tool. The map identifies several critical facilities throughout the county that are in or near flood hazard areas. The report will provide useful information such as the building replacement cost or contents value. Over the next five years, the six cities will continue to identify potential flood mitigation actions for inclusion in the PDM Plan. Maps of specific flood mitigation locations are included in Chapter 4 of the PDM Plan.

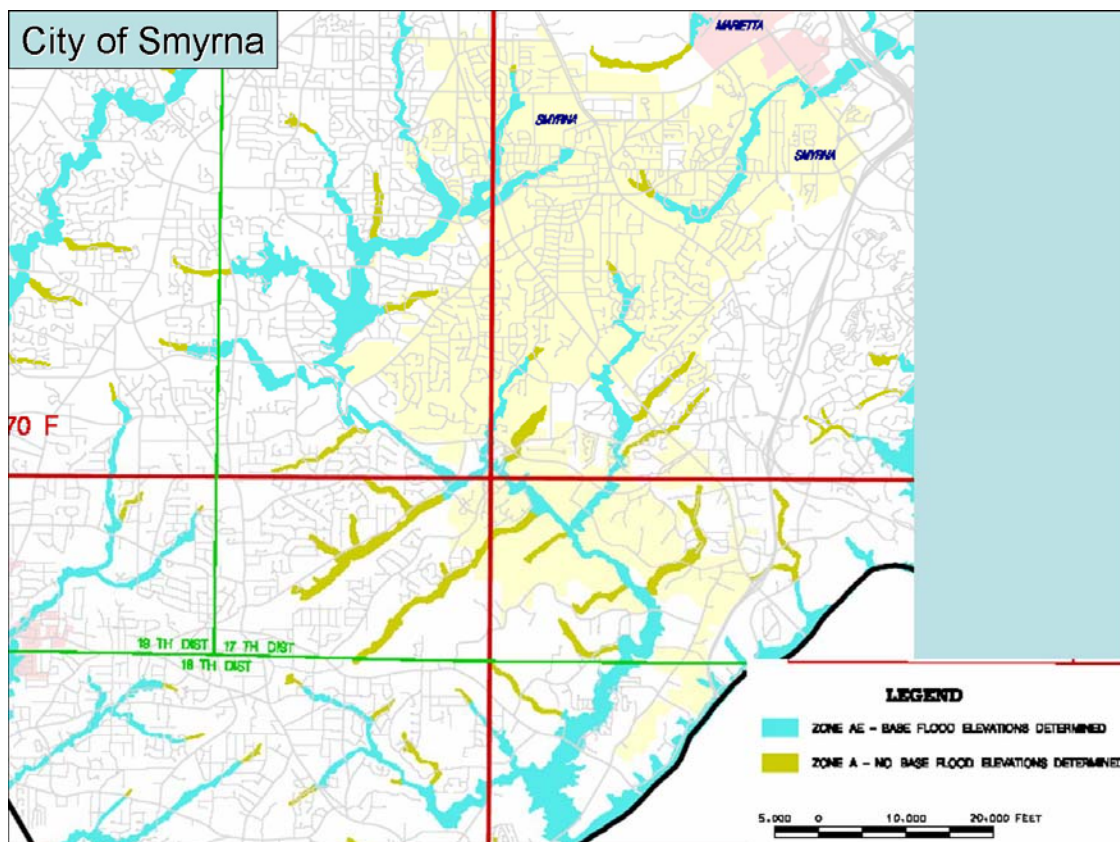
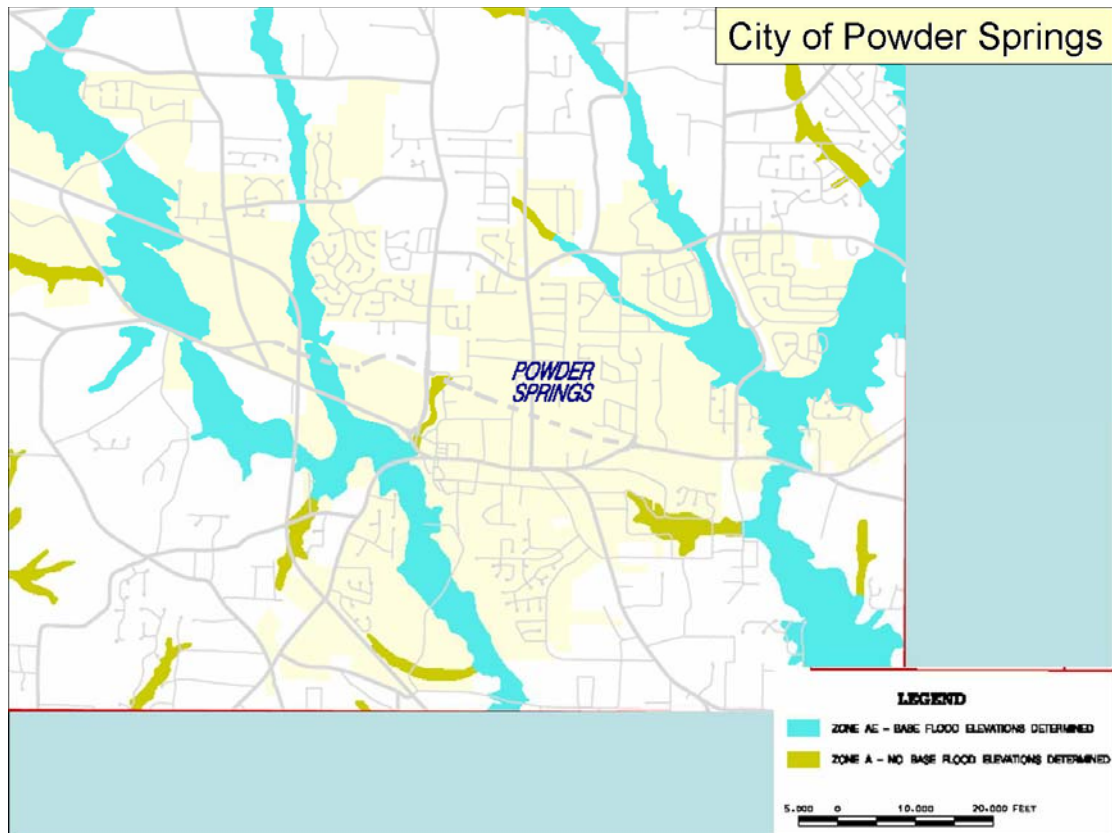
Cobb County Pre-Disaster Mitigation Plan



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Assets Exposed to Hazard

Virtually all of Cobb County is potentially subject to flooding. However, approximately 20% of Cobb County's 340 square mile area is floodplain (approximately 70 square miles or 44,800 acres). There are 29 repetitive loss properties remaining in the county. Interestingly, there are approximately 400 flood insurance policies underwritten in the county which probably represents less than half of the properties seriously affected by flooding in Cobb County. Appendix B-4 illustrates the potential impact if 20% of Cobb is flooded. Appendix A-8b maps provide detailed information about Cobb County's known flood damage sites. Appendix A-8c presents a FEMA 100 Year Flood Map of the entire county. It also includes the entire map broken down into 25 different tiles. These maps show the county's stream buffers, Flood Zones AE & A, and the locations of dams.

Estimate of Potential Losses

Appendix B-4 can be used to provide flood damage estimates by changing the percent value in the "% in Hazard Area" column and recalculating. According to the Cobb Water System, the potential losses due to floods cannot be predicted at this time. Therefore, GEMA Worksheet #3a is a good tool for developing flood damage estimates. PDM planners found no substantial data to support differentiating potential losses in the unincorporated county and Cobb's six cities.

Land Use & Development Trends

Development continues at an unprecedented rate in Cobb County. Roughly 15,000 people move into Cobb County every year (*2004 Cobb Data Book*), adding to the existing population of 651,000. Although Cobb County's regulations pertaining to development within floodplain areas has recently been made more restrictive, development pressure on all land in the county, including floodplain land, is growing.

Urbanization in Cobb County continues to increase, which has been directly related to increasing flows, increasing flood levels, and increased flood frequencies in the county. The effective FIS maps in Cobb County do not accurately reflect the flooding hazard in many areas of the county. However, a detailed map depicting future land use in Cobb County is located in Appendix A-8a. This map is only useful when the digital version is used with a PDF viewer since this level of detail is hard to read when printed on letter sized paper.

Multi-Jurisdictional Concerns

Previously, when the Cobb County Water System, Storm Water Management Division developed floodplain related plans, there was limited, if any, participation by the six local municipalities. As a result, flood hazard mitigation initiatives undertaken by the county focused mostly on the unincorporated areas of the county. The current FMP Plan addresses both local cities and unincorporated Cobb. All six cities, Acworth, Austell, Kennesaw; Marietta, Powder Springs, and Smyrna were provided with the Hazard Mitigation Matrix tool to help identify flood mitigation strategies. The six cities have also joined with the county in adopting, implementing, and maintaining both the FMP and PDM plans. The PDM Plan provides for the use of potential future grant funds received by Cobb County to support the flood mitigation goals identified in this plan for both unincorporated Cobb and its individual cities. The matrix tool was developed and distributed by Mr. Bill Higgins, Division Manager, the Cobb Water System, Storm Water Management Division (SWMD), in order to provide a tool for the cities to use when assessing what flood mitigation actions to take. See Appendix A-1.

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SECTION II – TORNADOES

Hazard Description

A tornado is a violent windstorm characterized by a twisting, funnel-shaped cloud. It is spawned by a thunderstorm (or sometimes as a result of a hurricane) and produced when cool air overrides a layer of warm air, forcing the warm air to rise rapidly. The damage from a tornado is a result of the high wind velocity and wind-blown debris. Tornado season is generally March through August, although tornadoes can occur at any time of year. They tend to occur in the afternoons and evenings: over 80 percent of all tornadoes strike between noon and midnight.

Hazard Identification

Tornadoes are measured on the Fujita Scale. Developed by Dr. T. Theodore Fujita in 1971, this system of measurement is based on the effects of winds on objects at a given speed. Wind speeds on the Fujita Scale measure from 40 miles an hour (F0) to over 318 miles an hour (F5). The scale is functional because it allows for an estimate of wind speeds based on observable damage. While this makes Fujita's system easy to apply, it also makes it subjective and, occasionally, inaccurate.

F-Scale	Wind Speed Range, mph (m/s)
F0	40 - 72 (17.8 - 32.6)
F1	73 - 112 (32.7 - 50.3)
F2	113 - 157 (50.4 - 70.3)
F3	158 - 206 (70.4 - 91.9)
F4	207 - 260 (92.0 - 116.6)
F5	261 - 318 (116.7 - 142.5)

Damage paths can be in excess of one mile wide and 50 miles long. Tornadoes are among the most unpredictable and destructive of weather phenomena. Tornado season in Georgia runs ordinarily from March through August; however, tornadoes can strike at any time of the year if the essential conditions are present. With a statewide average of 22 tornadoes per year, with the annual average of two deaths and 57 injuries, Cobb County Emergency Management Agency takes the threat of tornadoes very seriously. Cobb County ranks second in the state for the occurrence of tornadoes (*Direction Cobb*, April 2002).

Hazard Profile

All of Cobb County is vulnerable to the threat of a tornado, being as no one can predict exactly when or where a tornado might touch down. There are no significant differences between the county and its six municipalities (Acworth, Austell, Kennesaw, Marietta, Powder Springs and Smyrna) in terms of the risks and vulnerabilities associated with tornadoes. With 24 hits from tornadoes to Cobb County since 1955 through 2005, trend analysis indicates that 1.6 tornadoes will touch down in Cobb County every year. This equates to a 100% chance of a tornado touching down in Cobb County in any given year. A historical listing using NCDC data of natural hazards that includes tornadoes is located in Appendix B-3. Tornadoes tend to strike in somewhat random fashion, making the task of reliably calculating a recurrence interval extremely difficult. The damage potential associated with a tornado is extremely high. Cobb County has the second highest occurrence rate in the state.

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The most significant event in this regard was on the evening of April 8, 1998. On this date, an upper level low-pressure system formed, moving through the Ohio and Tennessee Valleys. During its path of travel, it picked up intensity, developing super cell thunderstorms, and spawning 6 tornadoes in northern Mississippi, Alabama, and Georgia. Some of these tornadoes were classified as F5 on the Fujita Scale. In the 6 hours this system was in existence, there were 36 fatalities, 273 injuries and over \$300 million in damages (NOAA Service Assessment, Southeastern US). At 12:20 a.m. on the morning of April 9, the second of 3 tornadoes touched down in Cobb County. This tornado was an F2, with winds of just under 150 mph. This tornado cut a path 600 feet wide and 3 miles long. Ground zero for the Cobb tornado was at the intersection of Windy Hill Road and Highway 41/Cobb Parkway. This location was less than ½ mile from the boundary of Dobbins Air Force Base, where numerous military planes were parked. Fifty five structures in Cobb County reported significant damage, 16 of those being commercial establishments. The remaining 39 losses were to residential structures; the estimated loss provided to Cobb Fire on April 9 was \$2.6 million for structures in Cobb alone, excluding contents (Cobb County Fire/EMA memo to archives file dated 04-13-98).

Assets Exposed to Hazard

It can be assumed that all structures and facilities within Cobb County could be damaged by a tornado, being as tornadoes are among the most unpredictable of weather phenomena and are indiscriminate as to when or where they strike. Newly constructed facilities and infrastructure will be evaluated and included in all future plan updates. Appendix B-3 provides additional data about tornadoes in Cobb County. In the digital version of the PDM Plan, each tornado record includes a web link to the specific NCDC incident report. Appendix B-4 can be used to calculate potential damage from tornadoes by simply changing the percentage in the “% in Hazard Area” column.

Estimate of Potential Losses

An obstacle to accurate loss estimation is the fact that losses may vary widely even within one category of natural hazard, depending on place and location. For instance, a tornado may hop from one location to another in a primarily rural area of the county, creating virtually no economic damage, whereas a similar hazard event in an urban area might create millions of dollars in damages. Compounding this obstacle to accurate loss estimation is the fact that tornadoes range considerably in their intensity and duration (see Fujita Scale).

The Cobb County PDM Planning Committee, using a loss estimation methodology provided by GEMA Hazard Mitigation Planners, was able to determine potential monetary losses for critical facilities in Cobb County. However, Appendix B-4 can be used to provide tornado damage estimates by changing the percent value in the “% in Hazard Area” column and recalculating.

Land Use & Development Trends

The county currently has no land use or development trends related specifically to tornadoes. Existing building codes do not require structures to exceed design wind speeds of 90 mph, however, construction must adhere to the Georgia State Minimum Standard Codes *Uniform Codes Act* and the *International Building Code* (2000 edition). The minimum standards established by these codes provide reasonable protection to

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persons and property within structures that comply with the regulations for most natural hazards.

Multi-Jurisdictional Concerns

All of Cobb County has the same design wind speed of 90 mph as determined by the American Society of Civil Engineers (ASCE). There are no significant differences between the county and the six municipalities (Acworth, Austell, Kennesaw, Marietta, Powder Springs and Smyrna) in terms of risks and vulnerabilities associated with tornadoes. As stated previously, the entire county can potentially be affected by a tornado. As a result, any mitigation steps taken related to tornadoes should be undertaken on a countywide basis and include the six municipalities (Acworth, Austell, Kennesaw, Marietta, Powder Springs and Smyrna). When future maps and data become available, and are determined relevant to the tornado hazard, they will be evaluated and incorporated as applicable into future plan updates.

Hazard Summary

Overall, Cobb County has high exposure to potential damage from tornadoes. Should a tornado hit certain portions of the county that are highly concentrated with homes, or any of the critical facilities identified, depending upon the strength and duration of the event, significant damage could occur. Due to the destructive nature of tornadoes, it is important that the PDM measures identified in this plan receive full consideration. Specific mitigation actions related to tornadoes are identified in Chapter 4.

SECTION III- THUNDERSTORMS AND HAIL

Hazard Description

For the purpose of analysis, the two hazards thunderstorms and hail have been consolidated. A thunderstorm is formed from a combination of moisture, rapidly rising warm air and a force capable of lifting air such as a warm and cold front, a sea breeze or a mountain. All thunderstorms contain lightning. Thunderstorms may occur singly, in clusters or in lines. Thus, it is possible for several thunderstorms to affect one location in the course of a few hours. Some of the most severe weather occurs when a single thunderstorm affects one location for an extended time.

Hail is produced by many strong thunderstorms. Hail can be smaller than a pea or as large as a softball and can be very destructive to plants and crops. In a hailstorm, take cover immediately. Pets and livestock are particularly vulnerable to hail, so bring animals into a shelter.

Hazard Identification

According to the Cobb Water System, Flood Mitigation Plan (FMP), cold frontal boundaries moving from Canada into the Midwest, and into Cobb County during the early spring, frequently collide with warm fronts moving north into Cobb County from the Gulf of Mexico. These collisions can spawn intense thunderstorms as well as tornadoes. These storms commonly occur in late February or early March and can produce severe flooding. Thunderstorms can also occur in late June, July or August when orographic lifting of water vapor during the summer heat transforms into powerful thunderstorms

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locally referred to as thunderboomers. Thunderboomers can be particularly hazardous because they are often stationary versus the rapidly moving frontal storms. When these powerful thunderstorm cells stall, they can dump massive amounts of rainfall to specific areas in a short period of time. In addition to flooding, thunderstorms can cause power outages, transportation and economic disruptions, significant property damage, and pose a high risk for injuries and loss of life.

A *severe thunderstorm watch* is issued by the National Weather Service when the weather conditions are such that a severe thunderstorm (damaging winds 58 miles per hour or more, or hail three-fourths of an inch in diameter or greater) is likely to develop.

Hazard Profile

The most prevalent natural hazard event occurring in Cobb County is thunderstorms. There are no significant differences between the county and its six municipalities (Acworth, Austell, Kennesaw, Marietta, Powder Springs and Smyrna) when it comes to areas of the county being affected. Cobb will experience 5.4 thunderstorms each year according to a review of the past ten years of NCDC-based historical data.

Cobb will experience 9.8 instances of hail each year according to a review of the past ten years of NCDC-based historical data. There are no significant differences between the county and its six municipalities (Acworth, Austell, Kennesaw, Marietta, Powder Springs and Smyrna) when it comes to areas of the county being affected.

Assets Exposed to Hazard

In evaluating assets that are susceptible to thunderstorms and hail, the committee determined that all critical facilities, as well as all public, private, and commercial property, are susceptible to thunderstorms and hail. Newly constructed facilities and infrastructure will be evaluated accordingly and included in all future plan updates.

Estimate of Potential Losses

According to the Cobb Water System (CWS) FMA Plan, it is hard to predict potential losses resulting from thunderstorms since they occur throughout the county. This is also true for hail. Appendix B-4 can be used to calculate various potential thunderstorm damage estimates by changing the percentage value in the *% in Hazard Area* column and recalculating. Additionally, Appendix A-8b provides detailed maps of the county's flood damage sites. There were no maps found that track the hazard hail. However, according to FEMA, the United States suffers approximately \$1 billion in damage to property and crops annually.

Land Use & Development Trends

Development continues at an unprecedented rate in Cobb County. Roughly 15,000 people move into Cobb County every year (*2004 Cobb Data Book*). Although Cobb County's regulations pertaining to development within floodplain areas has recently been made more restrictive (*See Appendix A-5: Cobb Flood Code*), development pressure on all land in the county, including floodplain land, is growing. Currently, there are no regulations pertaining to development and the hazard hail.

Multi-Jurisdictional Concerns

All of Cobb County can potentially be affected by thunderstorms and hail. As a result, any mitigation steps taken related to thunderstorms and hail should be undertaken on a

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countywide basis and include the six cities of Acworth, Austell, Kennesaw, Marietta, Powder Springs, and Smyrna. There are no definable or significant differences between the county and municipalities in terms of risks and vulnerabilities associated with thunderstorms and hail. As a result of the Cobb County PDM Plan, current maps and data produced by the Cobb County GIS Division have been included in this plan and distributed to the six local municipalities. The use of GIS will improve hazard mitigation planning countywide.

Hazard Summary

Overall, thunderstorms pose one of the greatest threats to Cobb County in terms of property damage, injuries, and loss of life, according to the CWS FMA Plan. Hail remains mostly a threat to property but the data did not provide any county/city estimates of damage costs. Thunderstorms are a serious natural hazard for Cobb County because they can spawn tornadoes and cause extensive flooding. Based on the frequency of this hazard, as well as its ability to negatively impact anywhere in the county, the PDM measures identified in this plan should be aggressively pursued. Specific mitigation actions related to thunderstorms and hail are located in Chapter 4. Appendix B-3 provides a historical listing of NCDC data that is indexed on the type of weather event. In the digital version of the report, each record includes a web link to the specific event report in the NCDC database.

SECTION IV - LIGHTNING

Hazard Description

Lightning is an electrical discharge that results from the buildup of positive and negative charges within a thunderstorm. When the buildup becomes strong enough, lightning appears as a bolt. This flash of light usually occurs within the clouds or between the clouds and the ground. A bolt of lightning reaches a temperature approaching 50,000 degrees Fahrenheit in a split second. The rapid heating and cooling of air near the lightning causes thunder. Some thunderstorms can be seen approaching, while others hit without warning. It is important to learn and recognize the danger signs and to plan ahead.

Hazard Identification

The PDM Planning Committee has identified lightning as a frequent natural occurrence to Cobb County and the six cities of Acworth, Austell, Kennesaw, Marietta, Powder Springs, and Smyrna. By definition, all thunderstorms are accompanied by lightning. The electrical charge from lightning can potentially be as much as 100 million volts. Lightning strikes proceed from cloud to cloud, cloud to ground, or where high structures are involved, from ground to cloud. Lightning strikes in Cobb County are most prevalent in the summer months. Appendix B-3 provides a historical listing of NCDC data that is indexed on the type of weather event.

Hazard Profile

Lightning, as with many natural hazards, can strike anywhere and at any time. There are no significant differences between the county and its six municipalities of Acworth, Austell, Kennesaw, Marietta, Powder Springs, and Smyrna in terms of the risks and vulnerabilities associated with lightning. There will be 2.9 lightning events each year according to a review of NCDC data for the past ten years. For additional information, a historical listing of natural hazards in Cobb County that includes lightning and based on

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NCDC data is located in Appendix B-3. In the digital version of the PDM Plan, each record includes a web link to the specific event report in the NCDC database.

Assets Exposed to Hazard

In evaluating assets that are susceptible to lightning strikes, the committee determined that all critical facilities, as well as all public, private and commercial property, are susceptible to being struck by lightning. Newly constructed facilities and infrastructure will be evaluated and included in all future plan updates.

Estimate of Potential Losses

Lightning can cause varying degrees of damage should it strike a facility. The most common is destroying the electrical components of a facility, or fire damage related to a lightning strike. Unlike most other natural hazards, lightning could potentially damage or destroy the contents of a structure (computers, televisions, phones, etc.) without any effect on the structure itself. In this regard, content and structure loss have been evaluated when considering potential losses for critical facilities (See Appendix B-5). Newly constructed facilities and infrastructure will be evaluated and included in all future plan updates. Appendix B-4 can be used to calculate potential lightning damage estimates by changing the percentage value in the *% in Hazard Area* column and recalculating.

Land Use & Development Trends

Cobb County currently has no land use or development trends related to lightning.

Multi-Jurisdictional Concerns

All of Cobb County can potentially be affected by lightning. As a result, any mitigation steps taken related to lightning should be undertaken on a countywide basis and include the cities of Acworth, Austell, Kennesaw, Marietta, Powder Springs, and Smyrna. There are no significant differences between the county and the municipalities in terms of risks and vulnerabilities associated with lightning. When future maps and data become available, and are determined relevant to the lightning hazard, they will be incorporated into future plan updates.

Hazard Summary

Lightning strikes have a high danger potential associated with them. Lightning, as with some of the other natural hazards typical to Cobb County, can strike anywhere and at any time. Its unpredictability, along with its deadly and destructive potential is all the more reason to explore mitigation actions. The PDM Planning Committee identified specific mitigation goals, objectives and action items related to lightning strikes. These mitigation actions are identified in Chapter 4.

SECTION V – WINTER STORMS

Hazard Description

A major winter storm can be lethal. Preparing for cold weather conditions and responding to them effectively can reduce the dangers caused by winter storms. Winter storms can include blizzards with large amounts of falling or blowing snow and sustained winds of at least 35 miles per hour. Winter storms may cause frostbite and hypothermia for people not properly dressed for severe cold weather and precipitation. Winter storms may also cause damage to homes by causing water pipes to freeze if it is not properly

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insulated. According to FEMA, preparation is the best mitigation strategy for ensuring peoples' safety and reducing the risk of winter storm damage to property.

Hazard Identification

The PDM Planning Committee researched historical data from the National Climatic Data Center and the National Weather Service relating to winter storms in Cobb County. The National Weather Service has given the following definition to winter storms according to the warning that is given.

WINTER STORM WARNING	Issued when hazardous winter weather conditions are imminent or very likely, including any occurrence or combination of heavy snow, wind-driven snow, sleet, and/or freezing rain/drizzle. Winter Storm Warnings are usually issued for up to a 12-hour duration, but can be extended out to 24 hours if the situation warrants. The term "near-blizzard" may be incorporated into the "winter storm warning" for serious situations which fall just short of official blizzard conditions.
BLIZZARD WARNING	Issued for winter storms with sustained winds or frequent gusts of 35 miles per hour or greater and considerable falling and/or blowing snow reducing visibility to less than ¼ mile. These conditions are expected to last at least 3 hours.
HEAVY SNOW WARNING	Issued for expected snowfall amounts of 4 inches or more in 12 hours or 6 inches or more in 24 hours. Snow is the only precipitation type expected.
ICE STORM WARNING	Issued when damaging ice accumulations are expected during freezing rain situations; walking and driving becomes extremely dangerous. Ice accumulations are usually ¼ inch or greater.
SLEET WARNING	Issued when accumulations of sleet covering the ground to a depth of ½ inch or more are expected. This is a relatively rare event.

Hazard Profile

There are no significant differences between the county and its six cities (Acworth, Austell, Kennesaw, Marietta, Powder Springs, and Smyrna) in terms of the risks and vulnerabilities associated with winter storms. There may be one winter storm a year in Cobb County according to a review of the past ten years of NCDC data. Although winter storms occur infrequently, they have the potential to wreak havoc on the community when they do strike. A good example is the blizzard that struck Georgia in March of 1993, and was particularly devastating to Cobb County and its six cities. Numerous power lines were downed; several roads, bridges, and buildings were damaged as a result of the heavy snow and ice accumulation. Appendix B-3 provides a historical listing of natural hazards in Cobb County that includes winter storms. In the digital version of the PDM Plan, each record includes a web link to the specific event report in the NCDC database.

Assets Exposed to Hazard

In evaluating assets that may potentially be impacted by the affects of winter storms, the Planning Committee determined that all critical facilities, as well as all public, private, and commercial property are susceptible.

Estimate of Potential Losses

The entire county is susceptible to winter storms. Therefore, it is difficult to predict potential losses. Potential loss estimates for individual critical structures is included in the data presented in Appendix B-5. Appendix B-4 can be used to calculate potential

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winter storm damage estimates by changing the percentage value in the *% in Hazard Area* column and recalculating.

Land Use & Development Trends

Cobb County currently has no land use or development trends related to winter storms.

Multi-Jurisdictional Concerns

All of Cobb County can be negatively impacted by winter storms. As a result, any mitigation steps taken related to winter storms should be undertaken on a countywide basis and include the cities of Acworth, Austell, Kennesaw, Marietta, Powder Springs and Smyrna. There are no significant differences between the county and the six cities in terms of risks and vulnerabilities associated with winter storms. When future maps and data become available, and are determined relevant to the winter storm hazard, they will be incorporated into future plan updates.

Hazard Summary

Winter storms, unlike other natural hazards, typically afford communities some advance warning. The National Weather Service issues winter storm warnings and advisories as these storms make their way south. Unfortunately, even with advance warning, some of the most destructive winter storms have occurred in the southern United States, where buildings and infrastructure are not typically designed to sustain severe winter conditions. Also, motorists not accustomed to driving in snow and icy conditions pose an additional danger on roads and highways. Specific mitigation actions are identified in Chapter 4.

SECTION VI - EARTHQUAKES

Hazard Description

Earthquake is a term used to describe the sudden slip on a fault, the resulting ground shaking and radiated seismic energy caused by the slip, or by volcanic or magmatic activity, or other sudden stress changes in the earth.

According to now generally accepted theory of plate tectonics, the earth's crust is divided into several major plates, some 50 miles thick, which move slowly and continuously over the interior of the earth. Earthquakes are initiated when, due to slowly accumulating pressure, the ground slips abruptly along a geological fault plane on or near a plate boundary. The resulting waves of vibration within the earth create ground motion at the surface that vibrates in a very complex manner.

Once the sudden rupture occurs, the earth begins to shake. This shaking is caused by a series of waves known as seismic waves moving from the center of the earthquake out to other parts of the earth. The type of waves involved in an earthquake is a key characteristic of the phenomenon. The four types of seismic waves are grouped into two main categories according to the way they travel from the source, or focus, of an earthquake. P waves and S waves are "body" waves. Love waves and Rayleigh waves are "surface" waves.

Once an earthquake occurs, it is important to know where the seismic event took place, how intense it was, and its impact on the built environment. The more we know about earthquakes and about how and when they occur, the more we can do to lessen their

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effects on our communities. Two scales are frequently used to measure earthquakes: the Modified Mercalli Intensity Scale, which measures the intensity or impact of an earthquake on people and the built environment, and the Richter scale, which measures the amount of energy released by an earthquake, or its magnitude.

Hazard Identification

According to the *Emergency Manager's Guide to Earthquakes in Georgia*, 1999, (See Appendix E, Earthquake references), while Georgia and the Southeastern United States are not typically known for seismic activity, documented incidents in the state of Georgia have shown minor to moderate earthquakes. Earthquakes in northwestern Georgia are clustered along a northeast trending line that represents the southwest extension of the Southeastern Tennessee Seismic Zone. On the basis of seismicity, the Southeastern Tennessee Seismic Zone is second only to the New Madrid Seismic Zone in the Eastern United States for its size and rate of earthquake production. In both seismic zones the earthquake hypocenters are at mid-crustal depths (14 ± 10 km) and outline a 150 mile long narrow active zone. These similarities and the existence of the great 1811-12 New Madrid earthquakes suggest that southeastern Tennessee or Northwest Georgia could also be the site of a similar great earthquake. This area currently experiences one magnitude 4.0 earthquake about every 10 years. A magnitude 4.0 earthquake is generally perceived as a startling vibration that may rock objects off shelves and may cause some cracking of plaster.

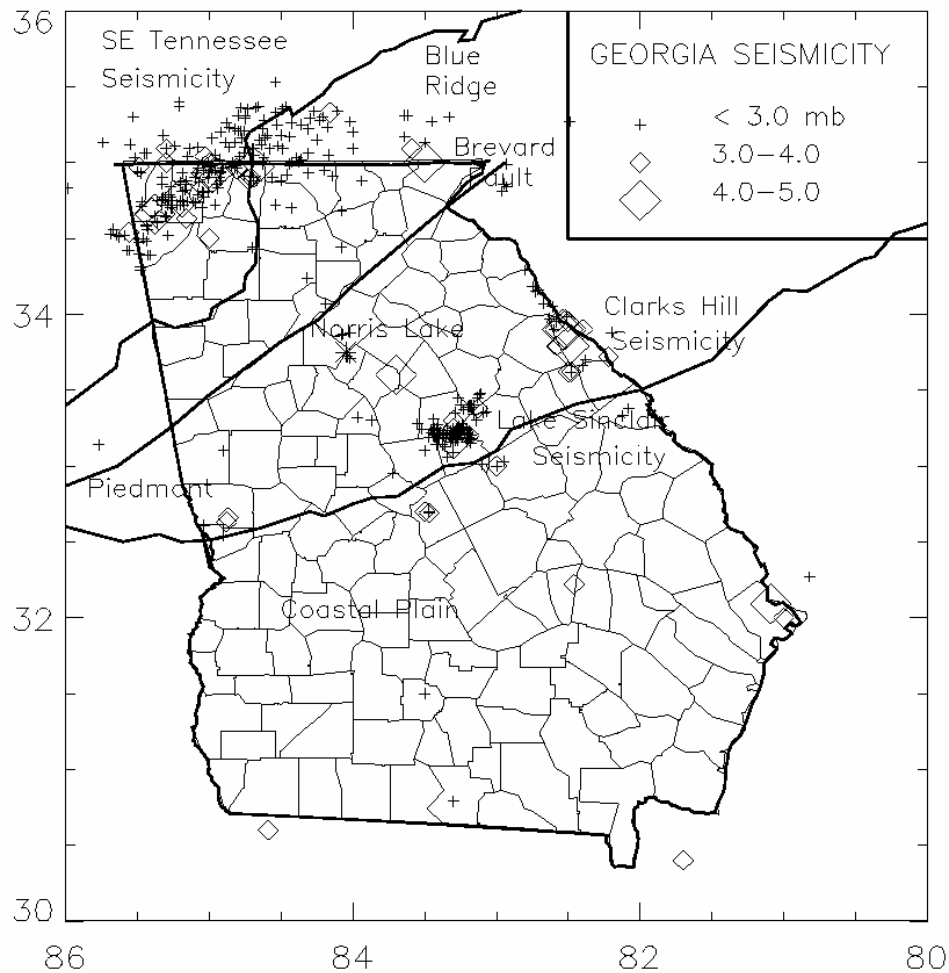
The Southeastern Tennessee Seismic Zone (STSZ) runs along the northwest portion of Georgia. When looking at seismic activity, the STSZ is ranked second behind the New Madrid Seismic Zone for intensity and rate of earthquakes. The Brevard fault line runs through the mountains of northwest Georgia and through Cobb County to the Georgia-Alabama line. The northwest portion of the state where Cobb is located is also part of a region called the *Piedmont Province*, where mild to moderate earthquakes occur every 2-4 years. Dr. Tim Long of the Georgia Tech School of Earth & Atmospheric Sciences states that, "these are often related to reservoirs and water seepage" (GEMA Press Release, March 18, 2003, #03-1082).

Hazard Profile

According to the *Emergency Manager's Guide to Earthquakes in Georgia*, "three levels of seismic activity are apparent in Georgia. The least active area is the Coastal Plane of South Georgia, where one significant earthquake has been experienced in the last 30 years, the 1976 Reidsville earthquake. The northern half of Georgia has experienced moderate seismicity, with a magnitude 4 earthquake about every 10 years. When the details of the seismicity contained in the more frequent smaller earthquakes are included in a hazard assessment, two areas of northern Georgia stand out as being unusually active. These are the central Georgia seismic zone and the extension of the Southeastern Tennessee Seismic Zone across northwest Georgia. The maximum damage from an earthquake will occur in the epicentral area and thus the counties located in these two zones have the greatest earthquake hazard in Georgia." Earthquake data was not available in the NCDC database.

The following map is also taken from the "*Emergency Manager's Guide to Earthquakes in Georgia*", February 1999.

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On March 18, 2003, an earthquake struck in Wilkes County, 50 miles east of Atlanta, and measured 3.5 on the Richter scale. The epicenter was determined to be just inside the Alabama state line. Noticeable aftershocks and tremors were felt in Cobb County, waking many people out of their beds. Media reporters interviewing residents repeatedly heard that citizens thought what woke them up was a sonic boom from a jet at Dobbins AFB. An earthquake measured 4.9 on the Richter scale struck in the area on April 29, 2003, again waking people around 5:00 a.m. from Mississippi to North Carolina, but the tremor failed to inflict significant damage. The epicenter of the tremor was near Fort Payne, Alabama, about 37 miles southwest of Chattanooga, Tennessee, along the border of Georgia and Alabama, according to the U.S. Geological Survey web site (CNN.com, 29 April 2003). Cobb EMA was called on to provide information to Cobb employees and residents regarding this incident, relaying information from GEMA and the seismology experts at Georgia Tech in Atlanta. At this time, earthquakes cannot be predicted.

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Assets Exposed to Hazard

Since earthquakes can not be predicted, any area of Cobb County is potentially at risk. Therefore, 100% of the assets of Cobb County are susceptible to the hazard.

Estimate of Potential Losses

There is no data from previous earthquakes to estimate possible losses in Cobb County. Appendix B-4 can be used to calculate potential earthquake damage estimates by changing the percentage value in the *% in Hazard Area* column and recalculating.

Land Use & Development Trends

Cobb County currently has no land use or development trends related to earthquakes.

Multi-Jurisdictional Concerns

There are no significant differences between the county and the six cities (Acworth, Austell, Kennesaw, Marietta, Powder Springs and Smyrna) in terms of risks and vulnerabilities associated with earthquakes. All of Cobb County can potentially be negatively impacted by earthquakes. As a result, any future mitigation steps taken related to earthquakes should be initiated on a countywide basis and include the six cities.

Hazard Summary

When earthquakes are discussed, Georgia is not the first state to be mentioned. Earthquakes in Georgia are rare, particularly when they are compared to the long history of damaging earthquakes which are associated with California's active San Andreas Fault zone and other fault zones bounding the tectonic plates of the Earth's crust. Movement of the Earth's crust along these plate boundaries explains most earthquakes. Georgia, like all the other states east of the Rocky Mountains, does not have active faults, and is not on a tectonic plate boundary. However, damaging earthquakes do occur in the interior of tectonic plates and these intra-plate earthquakes can be an important consideration for emergency managers.

SECTION VII - DROUGHT

Hazard Description

A drought is a period of abnormally dry weather that persists long enough to produce a serious hydrologic imbalance (crop damage, water supply shortage, etc.).

Hazard Identification

The only sizable stream that flows through the metropolitan area is the Chattahoochee River, the headwaters of which are in the mountains of north Georgia. The Chattahoochee River is of marginal size to supply Cobb County and the cities of Acworth, Austell, Kennesaw, Marietta, Powder Springs, and Smyrna. Groundwater resources in the area are comparatively limited.

Hazard Profile

Cobb County has just recently recovered from one of the longest droughts in its history, officially ending a 4-year drought as of January 2003. Although there is no cost data specifically for Cobb County, the state of Georgia incurred crop damages estimated at \$327 million. The National Drought Policy Commission recommended several programs to help mitigate the effects of drought, all of which are administered by the state of

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Georgia. According to the historical data on drought for Cobb County, there is the possibility that a drought will occur again.

Assets Exposed To Hazard

With the exception of lakes and rivers, there is no area within Cobb County that is more vulnerable to drought than any other area, and for that reason, all assets are considered to be exposed. However, it is not likely that any structure would be damaged in the event of a drought.

Estimate of Potential Losses

A drought is not expected to affect any structures in unincorporated Cobb or its six cities (Acworth, Austell, Kennesaw, Marietta, Powder Springs and Smyrna). However, crop and livestock damage is a potential concern. According to the *2000 Census of Agriculture, Cobb County* contains 191 farms, covering 10,950 acres of land. Crop sales accounted for \$5,377,000 and livestock sales accounted for \$303,000 in 2002. Should a severe drought affect Cobb County and its six cities in the future, the losses could be as much as \$5,680,000. (*2002 Census of Agriculture County Profile, Cobb, Georgia*)

Land Use and Development Trends

Cobb County has adopted the established statewide restrictions on water use for the county and the six municipalities (Acworth, Austell, Kennesaw, Marietta, Powder Springs and Smyrna). During drought conditions, the Georgia Department of Natural Resources has established statewide, year-round, outdoor water use restrictions.

- Odd-numbered addresses may water on Tuesdays, Thursdays, and Sundays (no hourly limits).
- Even-numbered and unnumbered addresses may water on Mondays, Wednesdays, and Saturdays (no hourly limits).
- No outdoor water use on Fridays.

Multi-Jurisdictional Hazard Differences

There are no significant differences between the county and the Cobb cities of Acworth; Austell; Kennesaw, Marietta, Powder Springs, and Smyrna in terms of the risks and vulnerabilities associated with drought. The probability for drought is the same countywide.

Hazard Summary

A brief drought would not be expected to have much impact on Cobb County and its six cities. However, prolonged drought could affect water resources in the county as well as increase the chance of wildfire, crop, and livestock damage. Lake Allatoona and the rivers it feeds are good examples of this. Appendix B-3 provides additional information about droughts in Cobb County based on NCDC data. Each record includes a web link to the specific event report in the NCDC database.

The onset of a drought is slow and can best be determined retrospectively. Therefore actions to avert drought impacts must be done in advance. There are currently eight programs in place in Georgia to mitigate the effects of a drought. These programs are *Water Withdrawal Permitting Program, Drinking Water Permitting Program, Water Resources Management Program, Agricultural Disaster Declaration and Damage Assessment Report Program, Farmers and Consumer Market Bulletin, Georgia*

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Department of Agriculture (GDA) Press Services, GDA Farmers Hotline, and the Emergency Livestock Feeding Project. (National Drought Policy Commission Report (Georgia. See Appendix D, Drought Section for web link)

Representatives of Georgia, including Cobb County and its six municipalities (Acworth, Austell, Kennesaw, Marietta, Powder Springs and Smyrna), understand the need to prepare for drought conditions. On 26 March 2003, the Georgia Department of Natural Resources (DNR) adopted the Georgia Drought Management Plan, which consists mostly of water conservation measures. In addition, the DNR is announcing the following year-round, conservation-based outdoor water use restrictions to become effective on 1 June 2003 for the entire state:

- Odd-numbered addresses water on Tuesdays, Thursdays, and Sundays (no hourly limits);
- Even-numbered or unnumbered addresses water on Mondays, Wednesdays, and Saturdays (no hourly limits).

CHAPTER 3 – TECHNOLOGICAL HAZARDS

SECTION I – DAMS (Potential Failures)

Hazard Description

Dam failures are potentially the worst flood events. A dam failure is usually the result of neglect, poor design, or structural damage caused by a major event such as an earthquake. When a dam fails, a gigantic quantity of water is suddenly let loose downstream, destroying anything in its path. This poses a serious threat to life and property.

Hazard Identification

According to the Cobb Water System (CWS), Storm Water Management Division (SWMD), since 1979 three dams have failed in Cobb County: Chastain Lakes lower dam (total breach in 1984; Wooten Lake dam (partial breach in 1989); Patillo dam at Valley Vista (total breach in 2004). Dam failures in other parts of the state have resulted in the loss of human life and property.

Flooding resulting from dam failures is becoming an increasing concern in Cobb. In conjunction with Cobb EMA, the SWMD will continue to seek grant funding from GEMA to study dams. Presently, there are 25 Category I dams that are regulated by the state of Georgia out of a total of 168 dams, with the remainder being largely unregulated. These dams can be located on the maps in Appendix A-8c with a listing of them in Appendix A-6.

Hazard Profile

It is generally believed that the majority of earth-fill dams in Cobb County were constructed in the 1940s and 1950s. Therefore, many of these existing dams are approaching service lives of 60-70 years. Many dams were constructed with corrugated metal standpipe and corrugated metal outlet conduits. Corrugated metal pipe generally has a service life of only 25 years. These dams are a serious potential hazard. Mitigation actions are proposed in Chapter 5.

Assets Exposed to Hazard

The number of dams posing potential loss of life hazards to Cobb residents and the number of residents living downstream of these potentially hazardous dams is unknown at this time. Future studies to learn more about the potential exposure are recommended in Chapter 5.

Estimate of Potential Losses

According to the Cobb Water System, SWMD, the potential losses due to dam failure flooding are unknown and cannot be estimated at this time. Future studies to learn more about the potential exposure are recommended in Chapter 5.

Land Use and Development Trends

According to the Cobb Water System, SWMD, the economic pressure increases to locate homes on previously undesirable land as land becomes more valuable in Cobb County. There is increasing pressure to build homes downstream of dams and even into the hypothetical dam breach zones.

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At this time there is no legally binding ordinance in Cobb County to regulate either existing, potentially hazardous dams, or the dam breach zones below them. Governmental oversight of the actions of private property owners on their own land is politically distasteful. The regulation of dam breach zones below these structures may constitute a government *taking of property* for which the property owner may be entitled to be compensated. Therefore, the required funding to bring such an ordinance forward may not be in place.

Multi-Jurisdictional Concerns

Not applicable at this time.

Hazard Summary

High hazard dams are those which pose a potential risk to human life in the event of catastrophic failure. If such a *high hazard* dam is at least 25 feet high, or if it impounds at least 100 acre-feet of water, then it is regulated by the state of Georgia (*Cobb Water System FMA Plan*). The state of Georgia design criteria is very conservative, and the review methodology is very meticulous and thorough. Therefore, high hazard dams do not pose the biggest concern for Cobb County.

All new dam construction is regulated by Cobb County and its development standards pertaining to dam design and construction are fairly conservative. Therefore, for the most part, it is not the new dams that pose the biggest concern for Cobb County.

Of greatest concern to Cobb are the numerous older high-hazard dams located throughout the county, which are too small to be regulated by the State, and are not being monitored, regulated, or maintained. In some cases, they may not even be inventoried. It is unknown how many of these could cause loss of life and property damage in the event of a catastrophic failure, but the number is potentially significant.

SECTION II – HAZARDOUS MATERIAL SPILLS

Hazard Description

Hazardous materials are chemical substances, which if released or misused can pose a threat to the environment or health. These chemicals are used in industry, agriculture, medicine, research, and consumer goods. Hazardous materials come in the form of explosives, flammable and combustible substances, poisons, and radioactive materials. These substances are most often released as a result of transportation accidents or because of chemical accidents in plants. The number of fixed-location and roadway related spills of hazardous materials responded to by Cobb HAZMAT teams, between 1995 and 2000 were evaluated. The data used came from the web site of the Georgia Environmental Protection Department of Natural Resources. It was determined that the average of fixed-location spills per year is 4.3 and the average of roadway spills is 2.8 per year. See Appendix A-2.

Hazard Identification

The PDM Planning Committee reviewed historical data from the Environmental Protection Division of the Georgia Department of Natural Resources (DNR), as well as from the Cobb Fire Department during its research involving hazardous material spills in Cobb County. A major source of hazardous spills is along roadways, highways and railways. Hazardous materials are substances that are harmful to the health and safety

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of people and property. Facilities are at risk that produce, process, or store hazardous materials, as are facilities that treat or dispose of hazardous waste. The term, *technological hazard* in this instance refers to incidents resulting from human activities such as the manufacture, transportation, storage, and use of hazardous materials. This plan assumes that hazards resulting from technological sources are accidental, and that their consequences are unintended.

Hazard Profile

Hazardous material spills occur frequently within the county. This is directly attributable to the presence of three interstate highways (I-75, I-285, I-20) the major railroads (Norfolk Southern and CSX), and many multi-lane state highways that run through the county. In 2004, Cobb Fire and Emergency Services data indicated 1,148 HAZMAT spills were reported--ten of which were level A hazardous material incidents. Between 1995 and 2000, fixed-location hazardous material spills had a 0.02 the county had each month.

Assets Exposed to Hazard

According to Cobb Fire Emergency Services, 367 SARA Title V and Tier II facilities are located in Cobb County. The most vulnerable asset exposed to hazardous material spills is often the environment, according to the EPA of the Georgia DNR, with waterways being the most impacted. Research indicates that the waterway most often impacted by hazardous material spills is the Chattahoochee River. Recorded data indicates that transportation related spills contribute to most of the waterway contaminations. Historical data indicates most fixed location spills have been minor and consist of diesel, mineral oil, or gasoline spills. The Cobb County PDM Planning Committee determined that the danger to critical facilities, as a result of a hazardous material spill, is minimal. It should be noted however that shutdowns, lost time, and expended man-hours are all factors mitigation planners must take into account when spills do occur either inside or outside facilities, or along roadways,

Estimate of Potential Losses

It is difficult to determine the damage to the environment associated with hazardous material spills. Cobb County has no recorded instances of critical facilities or other property being damaged as a result of hazardous material spills. For illustration purposes, Appendix B-4 calculates an aggregate damage at 33%. Other damage percentages are easily substituted as well.

Land Use and Development Trends

Cobb County currently has no land use or development trends related to hazardous material spills.

Multi-Jurisdictional Concerns

All of Cobb County, to include the six local municipalities, is vulnerable to both fixed location and transportation related hazardous material spills. I-75, I-285, and I-20 are most vulnerable to transportation related spills. Fixed location spills are possible in all areas of the county.

Hazard Summary

Hazardous material spills are a relatively common occurrence in Cobb County. The volume of spills experienced in the past dictates that mitigation measures are presented in the PDM Plan. Unknown types and quantities of hazardous materials travel through

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the county on a daily basis, posing a significant challenge in the development of adequate mitigation measures. Specific mitigation actions are identified in Chapter 5, Section II.

CHAPTER 4 – NATURAL HAZARD MITIGATION GOALS & OBJECTIVES

SECTION I - FLOODS

Mitigation Goals

As previously indicated in *Chapter 2, Section I*, flooding caused considerable damage within Cobb County over the past half century. The PDM Planning Committee determined that efforts to mitigate potential flooding are necessary. This is due to more than 20% of Cobb County being floodplain with the majority of the flood hazard concentrated in four areas: Sweetwater Creek; Chattahoochee River areas; Sope Creek; and Noonday Creek. This is in addition to the presence of 25 Class I dams out of a total of 168 dams that pose a potential risk for Cobb.

Historically, flood damage has been sustained to roads, bridges, natural resources, and public facilities, as well as private homes and businesses. Specific mitigation measures identified by the planning committee are designed to lessen the effects of such damage in the future.

Range of Mitigation Options

The PDM Planning Committee, working with the Cobb Water System, has identified both structural and non-structural mitigation measures to ensure that the community adequately addresses all relevant flooding issues. The Cobb FMP is found in Appendix C-3 of the digital version of this report. One mitigation action, Section 58, has been strengthening the Cobb Code. It deals with flood damage prevention and covers such issues as development policies, land use, building codes, and permits to ensure that proper flood mitigation measures are undertaken by the county in the future. The revised code will apply to all new buildings. Suggested mitigation action recognizes Cobb's ability to minimize future loss of life, and property damage, or economic losses. Recommended mitigation goals include acquisition and preservation of floodplain storage areas, and mitigation through non-structural and structural means.

Mitigation goals, objectives, and action steps for flooding, as develop by the planning committee, are as follows:

Mitigation Strategy for Floods

Goals 1-2 are for Unincorporated Cobb County

Goal #1

Mitigate flood hazards through non-structural means.

Objective #1

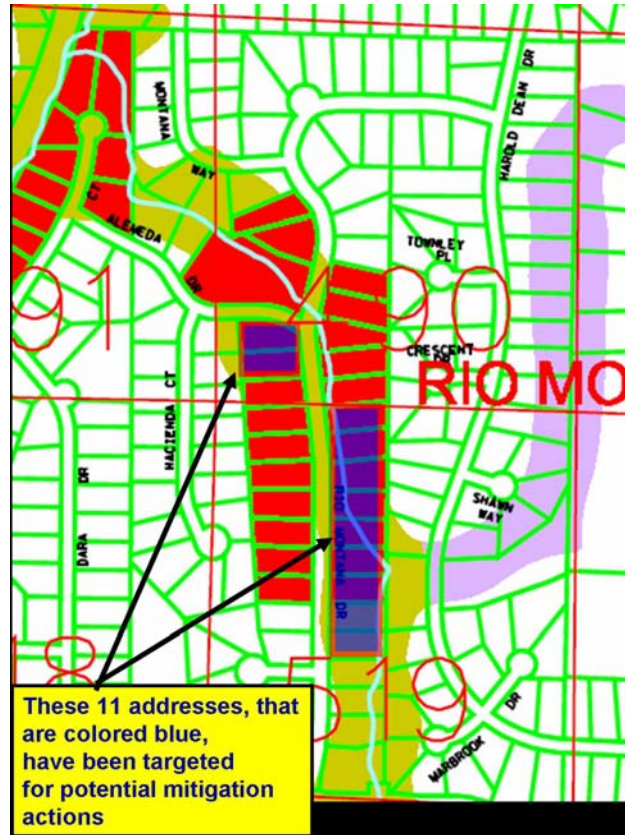
Identify specific action steps for accomplishing Goal #1.

Action Steps

Buyout 10 homes on Rio Montana located in the Noonday Creek Floodplain.

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Responsible Org: Cobb County
Coordinating Org: Cobb Water System
Timeline: 2005
Approximate Cost: 2,000,000
Funding Source: Grant funds



Conduct a stream bank mitigation study for the Chattahoochee River in the vicinity of Cochise Drive and Paces Ferry Drive.

Responsible Org: Cobb County
Coordinating Org: Cobb Water System
Timeline: 2005
Approximate Cost: \$40,000.00
Funding Source: Cobb Water System/grant funds

Assess the listed addresses for optimum mitigation strategies to reduce the threat of flooding:

- Cochise Drive: 3481; 3497; 3513; 3529; 3553; 3536; 3563; 3573; 3583; 3590; 3609; 3623; 3637; 3649; 3650; 3666; 3659; 3669; 3679; 3689; 3703; 3713; 3773; 3642; and 3630.
- Paces Ferry Drive: 3410; 3895; 3913; 3927; 3931; 3941; 3945; 3961; 3877; 3969; and 3987.

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Responsible Org: Cobb County

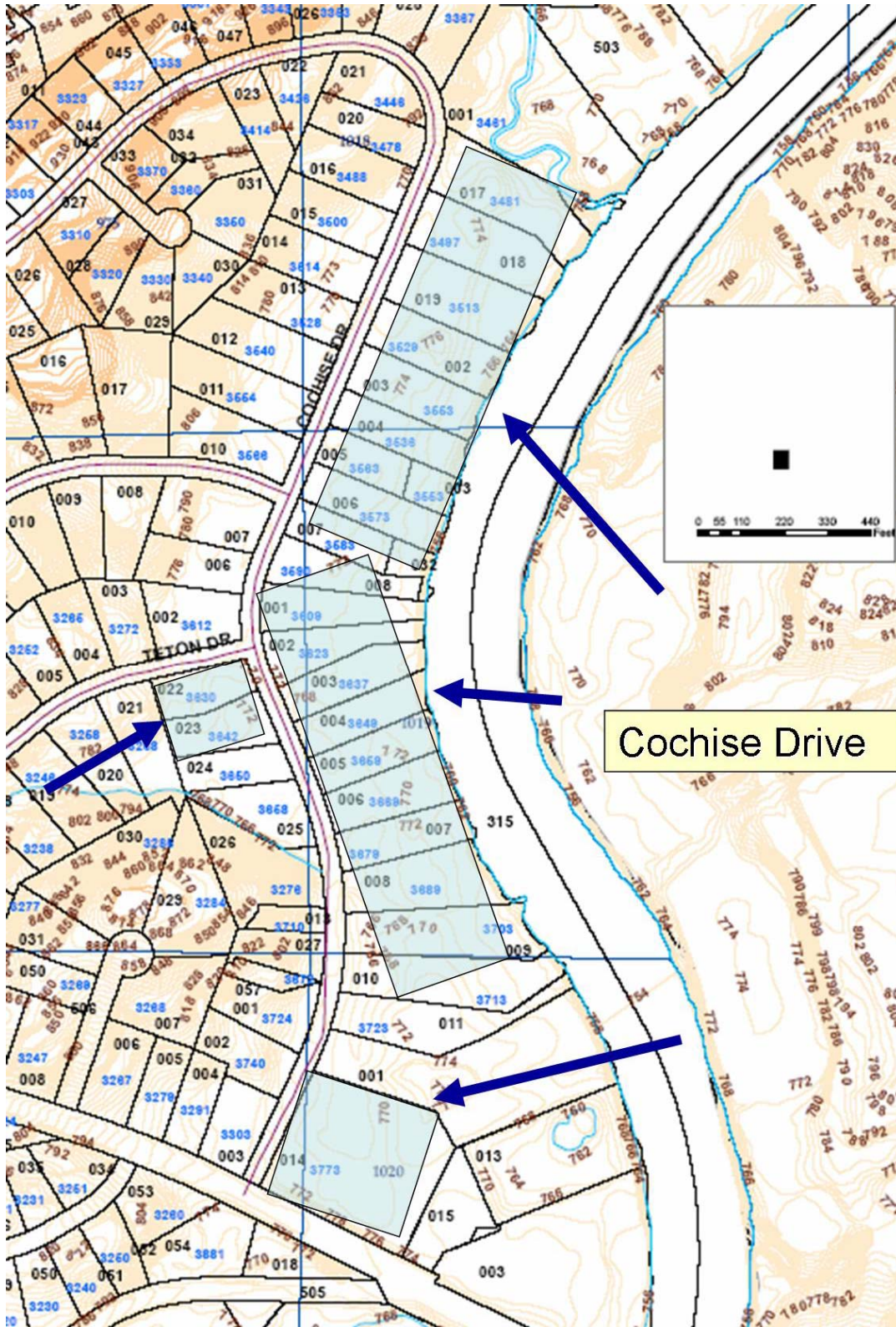
Coordinating Org: Cobb Water System

Timeline: 2005

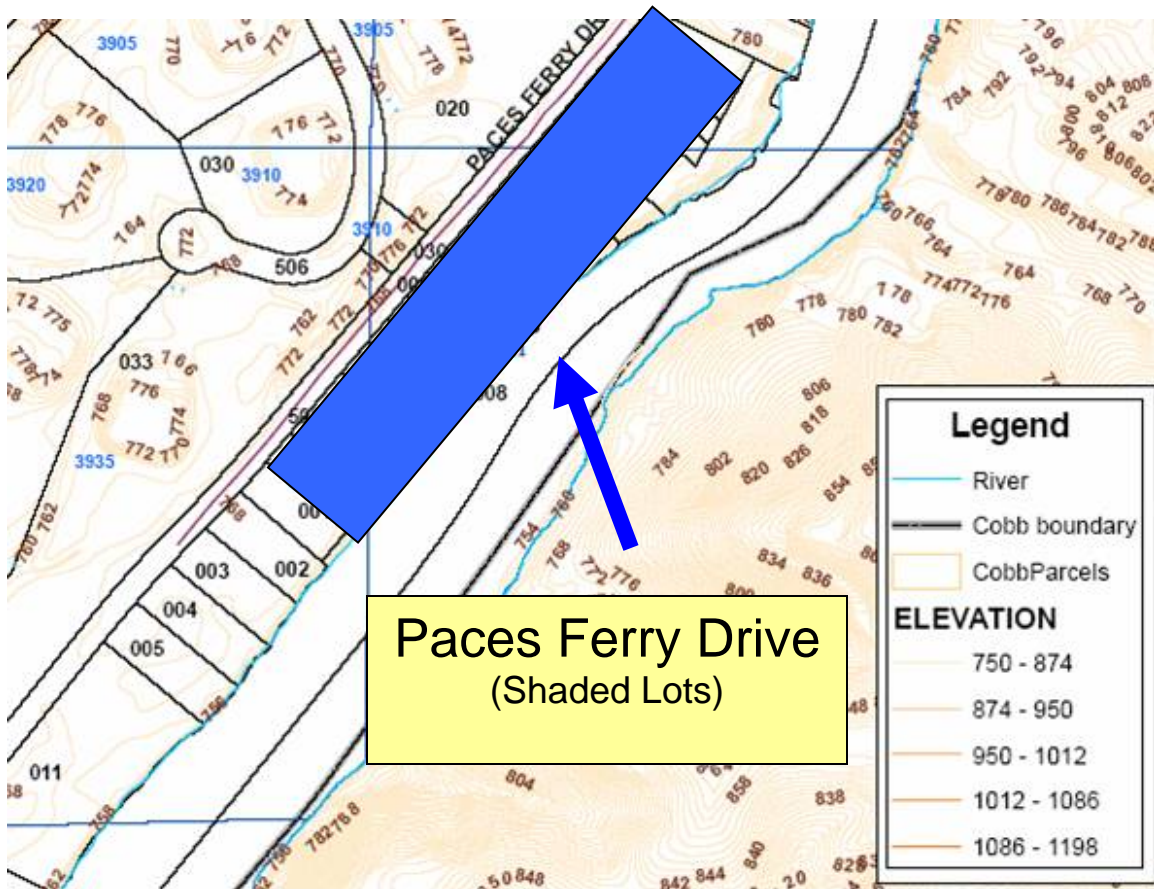
Approximate Cost: \$40,000.00

Funding Source: Cobb Water System/grant funds

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Continue buyout of vacant floodplain land.

Responsible Org: Cobb County
Coordinating Org: Cobb Water System
Timeline: 2012
Approximate Cost: 1,000,000
Funding Source: Cobb Water System/grants

Update Current Flood Damage Prevention Regulation.

Responsible Org: Cobb County
Coordinating Org: Cobb Water System
Timeline: 2006
Approximate Cost: \$45,000.00
Funding Source: Cobb Water System/grants

Promote floodplain mapping including updates and enhancements using GIS.

Responsible Org: Cobb County
Coordinating Org: Cobb EMA
Timeline: 2006
Approximate Cost: \$100,000.00
Funding Source: Cobb Water System/grants

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Goal #2

Mitigate flood hazards through structural means.

Objective #1

Identify specific action steps to achieve Goal #2.

Action Steps

Promote regional detention encouraging home owners wanting to remain in the floodplain to elevate their homes such that the lowest floor elevation is at least three feet above the 100-Year floodplain elevation.

Responsible Org: Cobb County
Coordinating Org: Cobb Water System
Timeline: 2006
Approximate Cost: \$25,000.00
Funding Source: Cobb Water System/grants

Evaluate all 20 major basins in Cobb and identify potential sites for construction of storm water structures to control potential flood damage.

Responsible Org: Cobb County
Coordinating Org: Cobb Water System
Timeline: 2009
Approximate Cost: \$150,000.00
Funding Source: Cobb Water System/grants

Expand a floodplain lot located in the Mountain View Subdivision in order to create a regionalized storm water controlling facility to relieve the downstream areas.

Responsible Org: Cobb County Water System/cities
Coordinating Org: Cobb EMA
Timeline: 2009
Approximate Cost: \$1,000,000.00
Funding Source: Cobb Water System/grants

Mountain View
Subdivision



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Develop information brochures and schedule public meetings about home elevation in Cobb floodplains.

Responsible Org: Cobb County Water System/cities
Coordinating Org: Cobb EMA
Timeline: 2007
Approximate Cost: \$25,000.00
Funding Source: Cobb Water System/grants

Goals 3 through 10 are for City of Smyrna

Goal #3

Minimize continuous flooding conditions within the city of Smyrna.

Objective #1

Identify specific action steps to accomplish Goal #3.

Action Steps

Install 900 linear feet of storm drainage pipe and elevate the road height at Whitfield Street and Whitfield Court, within the city of Smyrna.

Responsible Org: City of Smyrna
Coordinating Org: Department of Public Works
Timeline: 2007
Approximate Cost: 2,000,000.00
Funding Source: City general funds/grants

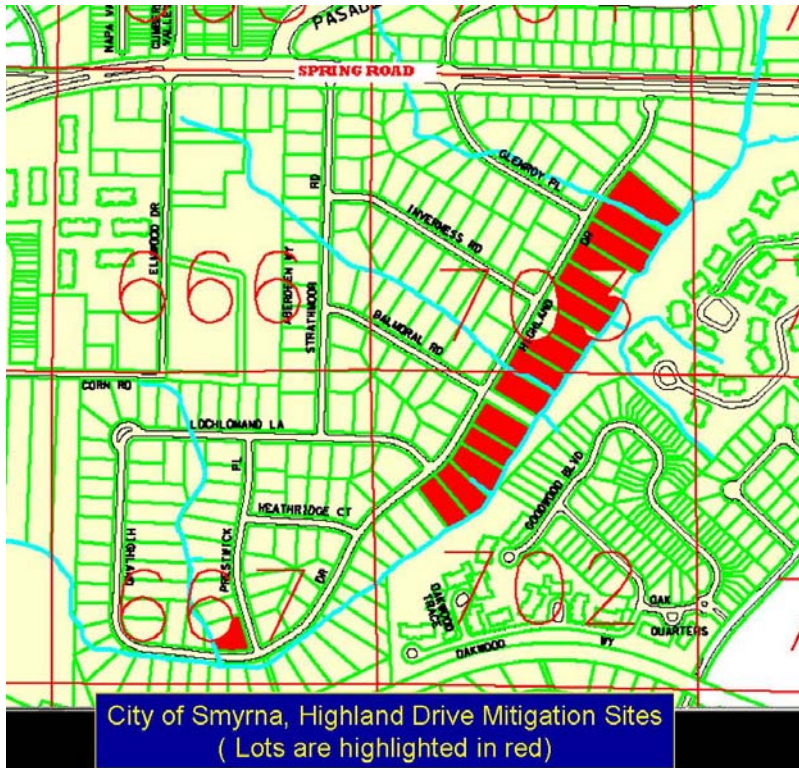
Buyout the following addresses on Highland Drive, City of Smyrna, to reduce flooding conditions: 3091, 3099, 3105, 3119, 3123, 3125, 3135, 3141, 3155, 3165, 3185, 3191 3209, and 3215.

Responsible Org: City of Smyrna
Coordinating Org: Department of Public Works
Timeline: 2007
Approximate Cost: \$2,500,000.00
Funding Source: City general funds / Grants

Buyout the home located at 3118 Prestwick Place, which has a history of flooding or build a holding pond.

Responsible Org: City of Smyrna
Coordinating Org: Department of Public Works
Timeline: 2007
Approximate Cost: \$200,000.00
Funding Source: City general funds/grants

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Goal #4

Adopt District Model for Smyrna storm water mitigation (SWM) Ordinances.

Objective #1

Develop district model for Smyrna SWM ordinances.

Action Steps

Form planning committee tasked to develop district model for Smyrna SWM ordinances.

Responsible Org: City of Smyrna

Coordinating Org: Department of Public Works

Timeline: 2007

Approximate Cost: \$25,000.00

Funding Source: City general funds/grants

Goal #5

Update Smyrna's map coverage of flood insurance.

Objective #1

Assess current flood insurance map coverage and identify deficiencies.

Action Steps

Identify and task GIS specialist to review current flood insurance map coverage and identify deficiencies.

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Responsible Org: City of Smyrna
Coordinating Org: Department of Public Works
Timeline: 2007
Approximate Cost: \$25,000.00
Funding Source: City general funds/grants

Goal #6

Widen minimum stream buffers inside city of Smyrna.

Objective #1

Conduct a city-wide assessment that identifies and prioritizes the streams that will have buffers widened.

Action Steps

Identify and task the appropriate resource that will conduct the assessment.

Responsible Org: City of Smyrna
Coordinating Org: Department of Public Works
Timeline: 2007
Approximate Cost: \$25,000.00
Funding Source: City general funds/grants

Goal #7

Obtain a current storm drainage structure inventory for the city of Smyrna.

Objective #1

Prepare current storm water drainage structure inventory.

Action Items

Identify and task the appropriate resource that will prepare a current storm water drainage inventory.

Responsible Org: City of Smyrna
Coordinating Org: Department of Public Works
Timeline: 2007
Approximate Cost: \$25,000.00
Funding Source: City general funds/grants

Goal # 8

Develop a current storm drainage structure inspection for the city of Smyrna.

Objective #1

Inspect and assess the current condition of Smyrna's storm drainage structure.

Action Items

Identify and task the appropriate resource that will inspect and assess the current condition of the storm drainage structure.

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Responsible Org: City of Smyrna
Coordinating Org: Department of Public Works
Timeline: 2007
Approximate Cost: \$25,000.00
Funding Source: City general funds/grants

Goal #9

Upgrade the condition of Smyrna's storm drainage structure.

Objective #1

Develop plan for upgrading the storm drainage structure.

Action Items

Form planning committee to develop a plan that will identify requirements for upgrading Smyrna's storm drainage structure.

Responsible Org: City of Smyrna
Coordinating Org: Department of Public Works
Timeline: 2007
Approximate Cost: \$25,000.00
Funding Source: City general funds/grants

Goal #10

Launch public education campaign about storm water mitigation.

Objective #1

Develop education materials to support public education campaign about storm water mitigation.

Action Items

Form group of subject matter experts to develop education materials to support public education campaign about storm water mitigation.

Responsible Org: City of Smyrna
Coordinating Org: Department of Public Works
Timeline: 2007
Approximate Cost: \$25,000.00
Funding Source: City general funds/grants

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Goals 11 through 14 are for City of Kennesaw

Goal #11

Develop a current storm drainage structure inventory.

Objective #1

Prepare current storm water drainage structure inventory.

Action Items

Identify and task the appropriate resource that will prepare a current storm water drainage inventory.

Responsible Org: City of Kennesaw
Coordinating Org: Department of Public Works
Timeline: 2007
Approximate Cost: \$25,000.00
Funding Source: City general funds/grants

Goal # 12

Obtain the results of a current storm drainage structure inspection.

Objective #1

Inspect and assess the current condition of the storm drainage structure.

Action Items

Identify and task the appropriate resource that will inspect and assess the current condition of the storm drainage structure.

Responsible Org: City of Kennesaw
Coordinating Org: Department of Public Works
Timeline: 2007
Approximate Cost: \$25,000.00
Funding Source: City general funds/grants

Goal #13

Launch public education campaign about storm water mitigation.

Objective #1

Develop education materials to support public education campaign about storm water mitigation.

Action Items

Form group of subject matter experts to develop education materials to support public education campaign about storm water mitigation.

Responsible Org: City of Kennesaw
Coordinating Org: Department of Public Works
Timeline: 2007
Approximate Cost: \$25,000.00
Funding Source: City general funds/grants

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Goal #14

Continue to buy back vacant flood plain land inside the city of Kennesaw.

Objective #1

Identify and prioritize for purchase vacant flood plain land.

Action Items

Form and task a work group to identify, and to recommend a prioritization for purchase, vacant flood plain land.

Responsible Org: City of Kennesaw
Coordinating Org: Department of Public Works
Timeline: 2007
Approximate Cost: \$25,000.00
Funding Source: City general funds/grants

Goals 15 through 18 are for City of Acworth

Goal #15

Adopt District Model for Acworth's storm water mitigation (SWM) Ordinances.

Objective #1

Develop district model for Acworth SWM ordinances.

Action Steps

Form planning committee tasked to develop district model for Acworth SWM ordinances.

Responsible Org: City of Acworth
Coordinating Org: Department of Public Works
Timeline: 2007
Approximate Cost: \$25,000.00
Funding Source: City general funds/grants

Goal #16

Widen minimum stream buffers in city of Acworth.

Objective #1

Conduct a city-wide assessment that identifies and prioritizes the streams that will have buffers widened.

Action Steps

Identify and task the appropriate resource that will conduct the assessment.

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Responsible Org: City of Acworth
Coordinating Org: Department of Public Works
Timeline: 2007
Approximate Cost: \$25,000.00
Funding Source: City general funds/grants

Goal #17

Develop a current storm drainage structure inventory for city of Acworth.

Objective #1

Prepare current storm water drainage structure inventory.

Action Items

Identify and task the appropriate resource that will prepare a current storm water drainage inventory.

Responsible Org: City of Acworth
Coordinating Org: Department of Public Works
Timeline: 2007
Approximate Cost: \$25,000.00
Funding Source: City general funds/grants

Goal # 18

Obtain a current storm drainage structure inspection for city of Acworth.

Objective #1

Inspect and assess the current condition of the storm drainage structure.

Action Items

Identify and task the appropriate resource that will inspect and assess the current condition of the storm drainage structure.

Responsible Org: City of Acworth
Coordinating Org: Department of Public Works
Timeline: 2007
Approximate Cost: \$25,000.00
Funding Source: City general funds/grants

Goals 19 through 25 are for City of Marietta

Goal #19

Adopt District Model for Marietta's storm water mitigation (SWM) ordinances.

Objective #1

Develop district model for Marietta's SWM ordinances.

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Action Steps

Form planning committee tasked to develop district model for Marietta SWM ordinances.

Responsible Org: City of Marietta
Coordinating Org: Department of Public Works
Timeline: 2007
Approximate Cost: \$25,000.00
Funding Source: City general funds/grants

Goal #20

Update Marietta's flood insurance map coverage.

Objective #1

Assess current flood insurance map coverage and identify deficiencies.

Action Steps

Identify and task GIS specialist to review current flood insurance map coverage and identify deficiencies.

Responsible Org: City of Marietta
Coordinating Org: Department of Public Works
Timeline: 2007
Approximate Cost: \$25,000.00
Funding Source: City general funds/grants

Goal #21

Widen minimum stream buffers in city of Marietta.

Objective #1

Conduct a city-wide assessment that identifies and prioritizes the streams that will have buffers widened.

Action Steps

Identify and task the appropriate resource that will conduct the assessment.

Responsible Org: City of Marietta
Coordinating Org: Department of Public Works
Timeline: 2007
Approximate Cost: \$25,000.00
Funding Source: City general funds/grants

Goal #22

Obtain a current storm drainage structure inventory.

Objective #1

Prepare current storm water drainage structure inventory.

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Action Items

Identify and task the appropriate resource that will prepare a current storm water drainage inventory.

Responsible Org: City of Marietta
Coordinating Org: Department of Public Works
Timeline: 2007
Approximate Cost: \$25,000.00
Funding Source: City general funds/grants

Goal # 23

Obtain a current storm drainage structure inspection for city of Marietta.

Objective #1

Inspect and assess the current condition of the storm drainage structure.

Action Items

Identify and task the appropriate resource that will inspect and assess the current condition of the storm drainage structure.

Responsible Org: City of Marietta
Coordinating Org: Department of Public Works
Timeline: 2007
Approximate Cost: \$25,000.00
Funding Source: City general funds/grants

Goal #24

Upgrade the condition of Marietta's storm drainage structure.

Objective #1

Develop plan for upgrading the storm drainage structure.

Action Items

Form planning committee to develop a plan that will identify requirements for upgrading the storm drainage structure.

Responsible Org: City of Marietta
Coordinating Org: Department of Public Works
Timeline: 2007
Approximate Cost: \$25,000.00
Funding Source: City general funds/grants

Goal #25

Launch public education campaign about storm water mitigation for residents of Marietta.

Objective #1

Develop education materials to support public education campaign about storm water mitigation.

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Action Items

Form group of subject matter experts to develop education materials to support public education campaign about storm water mitigation.

Responsible Org: City of Marietta
Coordinating Org: Department of Public Works
Timeline: 2007
Approximate Cost: \$25,000.00
Funding Source: City general funds/grants

Goal #26 is for City of Austell

Goal #26

Update Austell's flood insurance map coverage.

Objective #1

Assess current flood insurance map coverage and identify deficiencies.

Action Steps

Identify and task GIS specialist to review current flood insurance map coverage and identify deficiencies.

Responsible Org: City of Austell
Coordinating Org: Department of Public Works
Timeline: 2007
Approximate Cost: \$25,000.00
Funding Source: City general funds/grants

Goal #27 is for the City of Powder Springs

Goal #27

Update the Powder Springs' flood insurance map coverage.

Objective #1

Assess current flood insurance map coverage and identify deficiencies.

Action Steps

Identify and task GIS specialist to review current flood insurance map coverage and identify deficiencies.

Responsible Org: City of Powder Springs
Coordinating Org: Department of Public Works
Timeline: 2007
Approximate Cost: \$25,000.00
Funding Source: City general funds/grants

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Multi-Jurisdictional Considerations

The PDM Plan is intended to augment the Cobb Water System's FMP. This has required close coordination with the Storm Water Management Division (SWMD) regarding county and local flood mitigation goals. All six cities-Acworth, Austell, Kennesaw, Marietta, Powder Springs, and Smyrna-actively participated in developing the PDM Plan. The six cities will also partner with the county in adopting, implementing, and maintaining it. Additionally, it is hoped that the use of future grant funds received by Cobb County will support all of the mitigation goals identified in this plan. These include the mitigation goals already submitted by the six cities as well as any future submissions. Cobb County cities will continue to examine their respective storm water flood conditions and it is anticipated that additional flood mitigation goals may be submitted in the near future.

Education & Awareness

The Cobb County PDM Planning Committee has identified several methods of public education and awareness regarding hazard mitigation. All public information efforts are aimed at keeping the citizens of Cobb County fully engaged in the implementation and periodic maintenance of this mitigation plan. Many of these education and awareness tools are multi-hazard in nature and include the following: implementing a countywide crisis alert or notification system, distribution of informational brochures or pamphlets, and public and private sector briefings and workshops.

SECTION II - TORNADOES

Mitigation Strategy for Tornadoes

Mitigation Goals

It should be noted that many of the goals, objectives and related action items associated with tornadoes also pertain to thunderstorms. Tornadoes are much more destructive and less frequent than thunderstorms, but both pose serious threats to Cobb County citizens. The mitigation goals, objectives and action items represent Cobb's mitigation strategy to reduce, or avoid, long-term vulnerabilities associated with tornadoes.

Range of Mitigation Options

The mitigation measures identified for tornadoes should be considered when evaluating appropriate mitigation actions for thunderstorms as well. The range of mitigation actions include warning sirens, proposed reverse 911 alert system, and developing and conducting public awareness programs for Cobb County.

Goal #1:

Minimize loss of life due to tornadoes in Cobb County and its six municipalities (Acworth, Austell, Kennesaw, Marietta, Powder Springs and Smyrna).

Objective #1:

Protect all Cobb County citizens from the effects from tornadoes.

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Action Steps:

Install additional tornado weather warning sirens throughout the County for 100 percent coverage (Category: Life/Property Protection).

Responsible Org: Cobb County
Coordinating Org: Cobb EMA
Timeline: 2012
Approximate Cost: Vortex sirens \$14,000.00 each, Big Voice
\$\$\$33,000.00 each
Funding Source: County general funds/grants.

Implement a reverse 911 system to alert affected areas.

Responsible Org: Cobb County
Coordinating Org: Cobb 911
Timeline: 2007
Approximate Cost: \$40,000.00
Funding Source: County general funds/grants

Develop public education and awareness program regarding high winds and tornadoes.

Responsible Org: Cobb County
Coordinating Org: Cobb County EMA
Timeline: 2006
Approximate Cost: \$10,000.00
Funding Source: Cobb County

Implement an aggressive campaign to identify Cobb's *special-needs* citizens for individual notification of warnings and conditions.

Responsible Org: Cobb County
Coordinating Org: Cobb EMA
Timeline: 2008
Approximate Cost: \$35,000.00
Funding Source: County general funds/grants

Multi-Jurisdictional Considerations

Planning representatives from the cities of Acworth, Austell, Kennesaw, Marietta, Powder Springs, and Smyrna will continue to assess the tornado hazard in their respective cities. Cobb County EMA now has 74 emergency warning sirens currently operational in Cobb County with the City of Smyrna controlling their own 9 sirens. These sirens are used primarily for tornado warnings but could be used in the event of other natural hazards. The projected range of each siren is approximately a one-mile radius. Several areas in the county do not fall into these warning radiuses with approximately 25% of the county out of range of the warning system. Efforts continue to put the entire county within range of the warning system.

Education & Awareness

All public information efforts are aimed at keeping the citizens of Cobb County fully engaged in the implementation and periodic maintenance of this mitigation plan. Many of these education and awareness tools are multi-hazard in nature and include

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implementing a countywide crisis alert or notification system, distribution of informational brochures or pamphlets, public and private sector briefings, and workshops.

SECTION III - THUNDERSTORMS

Mitigation Goals

It should be noted that many of the goals, objectives, and related action items associated with tornadoes also pertain to thunderstorms. Tornadoes are much more destructive and less frequent than thunderstorms, but both pose serious threats to Cobb County citizens. Hail is also a hazard throughout all of Cobb County. The mitigation goals, objectives, and action items identified for thunderstorms represent Cobb's mitigation strategy to reduce, or avoid, long-term vulnerabilities associated with these hazards. The mitigation goal for hail represents the need to learn more about how to mitigate property damage.

Range of Mitigation Options

The mitigation measures identified for addressing the effects of thunderstorms and hail in Cobb County range from providing radios to elderly and low income citizens, to increasing public awareness, and conducting additional studies about protecting property from both.

Mitigation Strategy for Thunderstorms

Goal #1

Minimize losses of life and property due to thunderstorms and hail in Cobb County and the six cities of Acworth, Austell, Kennesaw, Marietta, Powder Springs, and Smyrna.

Objective #1

Protect vulnerable populations from the effects of thunderstorms.

Action Steps:

Provide weather radios to elderly and low-income citizens.

Responsible Org: Cobb EMA

Coordinating Org: Cobb EMA

Timeline: 2008

Approximate Cost: \$50,000.00

Funding Source: County general funds/grants

Initiate a countywide natural hazards public awareness campaign, that includes recommendation to purchase a weather radio, and related safety measures.

Responsible Org: Cobb EMA

Coordinating Org: EMA

Timeline: 2008

Approximate Cost: \$7,000.00

Funding Source: County general funds/grants

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Conduct a study about how to improve property protection from hail.

Responsible Org: Cobb EMA
Coordinating Org: EMA
Timeline: 2008
Approximate Cost: 15,000.00
Funding Source: County general funds/grants

Multi-Jurisdictional Considerations

All of Cobb County can potentially be affected by thunderstorm winds. No significant differences exist between the unincorporated county and its six municipalities (Acworth, Austell, Kennesaw, Marietta, Powder Springs and Smyrna) in terms of the risks and vulnerabilities associated with thunderstorm winds. Weather reports and the Emergency Alert System represent an effective means to warn residents of impending high winds. However, few businesses and industries have televisions or radios on during working hours. The Weather radio is a valuable means to alert businesses, industries and residents of potential inclement conditions. As a result, suggested mitigation actions related to thunderstorm winds should be undertaken on a countywide basis and include the cities of Acworth, Austell, Kennesaw, Marietta, Powder Springs, and Smyrna.

Education & Awareness

The Cobb County PDM Planning Committee has identified several potential methods of public education and awareness regarding hazard mitigation. All public information efforts are aimed at keeping the citizens of Cobb County fully engaged in the implementation and periodic maintenance of this mitigation plan. Many of these education and awareness tools are multi-hazard in nature and include implementing a countywide crisis alert or notification system, distributing informational brochures or pamphlets, and conducting public and private sector briefings and workshops.

SECTION IV – LIGHTNING

Mitigation Goals

Lightning strikes, although relatively rare in occurrence, have a high danger potential associated with them. Lightning can cause severe damage to structures and their contents. Fire, resulting from a lightning strike, is also a constant threat. Although critical facilities have not experienced significant damage from lightning strikes, there are still several mitigation measures that can be initiated to guard against future damaging strikes. The mitigation measures suggested by the planning committee can be used by local officials and Cobb County citizens in initiating effective mitigation actions.

Range of Mitigation Options

The PDM Planning Committee has identified structural and non-structural mitigation measures to ensure that the community addresses all relevant considerations. This may result in alterations to current policies and building codes if necessary. Public education and awareness is also a key component of any mitigation strategy dealing with the dangers posed by lightning. Historical considerations include all of the Cobb County structures listed on the National Register of Historic Places. General and specific measures are suggested to aid in mitigation of the potential negative impact lightning

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may impose on Cobb County and the cities of Acworth, Austell, Kennesaw, Marietta, Powder Springs, and Smyrna. They are as follows:

Mitigation Strategy for Lightning

Goal #1

Minimize loss of life and property due to lightning in Cobb County and the cities of Acworth, Austell, Kennesaw, Marietta, Powder Springs, and Smyrna.

Objective #1

Protect critical facilities and the general public from the effects of lightning.

Action Steps

Inspect all city and county critical facilities for proper grounding.

Responsible Org: Cities/county
Coordinating Org: EMA
Timeline: 2007
Approximate Cost: \$12,000.00
Funding Source: Grants

Install lightning rods on high value critical facilities, including schools, law enforcement facilities, etc.

Responsible Org: Cobb County/cities
Coordinating Org: EMA
Timeline: 2008
Approximate Cost: \$5,000,000.00
Funding Source: County/city general funds

Install surge protectors at power entrance of applicable critical facilities in Cobb County and the six cities.

Responsible Org: Cobb County/cities
Coordinating Org: County/cities
Timeline: 2007
Approximate Cost: \$5,000,000.00
Funding Source: County/city general funds

Objective #2

Promote better protection of residential and commercial structures from lightning.

Action Steps

Promote the use of lightning rods as part of public awareness initiative of natural hazards.

Responsible Org: County/cities
Coordinating Org: County/cities
Timeline: 2006 – Continual
Approximate Cost: \$5,000.00
Funding Source: County/cities

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Promote the use of surge protectors as part of public awareness initiative of natural hazards.

Responsible Org: County/cities
Coordinating Org: County/cities
Timeline: 2006 – Continual
Approximate Cost: \$2,000.00
Funding Source: County/cities

Multi-Jurisdictional Considerations

Lightning, as with many natural hazards, can strike anywhere and at any time. No significant differences exist between the county and its six municipalities of Acworth, Austell, Kennesaw, Marietta, Powder Springs, and Smyrna in terms of the risks and vulnerabilities associated with lightning. As a result, any mitigation steps taken related to lightning should be undertaken on a countywide basis and include the cities of Acworth, Austell, Kennesaw, Marietta, Powder Springs, and Smyrna.

Education & Awareness

The PDM Planning Committee has several methods of public education and awareness to increase awareness about hazard mitigation. All public information efforts are aimed at keeping the citizens of Cobb County involved in the implementation and maintenance of the PDM Plan. Many of these education and awareness tools are multi-hazard in nature and include implementing Cobb's new siren warning system that currently covers 75% of the entire county, a countywide crisis alert or notification system, distributing informational brochures or pamphlets, and public and private sector meetings.

SECTION V – WINTER STORMS

Mitigation Goals

The threat of winter storms is a concern in Cobb County. Unlike other portions of the United States, Cobb County does not typically receive the amounts of snow and ice that other regions do, nor do they experience winter storms as frequently as other regions. On the surface, the community appears fortunate, but this also poses a problem in that the community does not have the equipment or supplies readily available that are necessary to combat treacherous winter storm conditions. The formation of ice on roads and bridges, tree limbs, and power lines is the cause of most damage. The Cobb County PDM Planning Committee has determined that several steps could be undertaken to ensure the effects of winter storms within the community are minimized.

Range of Mitigation Options

The Cobb County PDM Planning Committee has identified non-structural mitigation measures in addressing winter storm conditions. Because of the infrequent nature of winter storms in Cobb County, and the cost-prohibitive nature of many structural mitigation projects, the planning committee focused on measures related to the safety, comfort, and continuation of services for Cobb County citizens. To ensure that proper mitigation measures are undertaken, current policies may have to be amended or modified. There are no historic or special considerations related to winter storm mitigation measures. Mitigation goals, objectives and action items for winter storms are as follows:

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Mitigation Strategy for Winter Storms

Goal #1

Minimize losses of life and property due to effects of winter storms in Cobb County and the cities of Acworth, Austell, Kennesaw, Marietta, Powder Springs and Smyrna.

Objective #1

Protect critical facilities from the effects of loss of electricity in Cobb County and the cities of Acworth, Austell, Kennesaw, Marietta, Powder Springs and Smyrna to ensure continuation of vital services.

Action Steps

Inventory/test generators at all critical city/county facilities.

Responsible Org: Cobb County/Cobb cities

Coordinating Org: Cobb County EMA

Timeline: September 2008

Approximate Cost: \$5,000.00

Funding Source: Grants/Cobb County/Cobb cities

Assess shortages of generators needed for all city and county critical facilities.

Responsible Org: Cobb County/Cobb cities

Coordinating Org: Cobb County EMA

Timeline: September 2008

Approximate Cost: \$5,000.00

Funding Source: Grants/Cobb County/Cobb cities

Objective #2

Promote increased public awareness about potential dangers associated with winter storms and related safety measures.

Action Steps

Develop brochures and related training materials to better educate the public as part of a public awareness campaign about natural hazards.

Responsible Org: Cobb County/Cobb cities

Coordinating Org: Cobb County EMA

Timeline: September 2008

Approximate Cost: \$7,000.00

Funding Source: Grants/Cobb County/Cobb cities

Develop strategy for delivery of information materials and scheduling public meetings.

Responsible Org: Cobb County/Cobb cities

Coordinating Org: Cobb County EMA

Timeline: September 2008

Approximate Cost: \$1,500.00

Funding Source: Grants/Cobb County/Cobb cities

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Goal #3

Increase public awareness about Cobb County/six cities' capabilities and future plans for improving public alerts when natural hazards occur.

Action Steps

Develop comprehensive strategy based on current assessment for improving a countywide crisis alert or notification system.

Responsible Org: Cobb County/Cobb cities

Coordinating Org: Cobb County EMA

Timeline: September 2008

Approximate Cost: \$1,500.00

Funding Source: Grants/Cobb County/Cobb cities

Multi-Jurisdictional Considerations

Winter storms affect all of Cobb County. No significant differences exist between the county and its six municipalities (Acworth, Austell, Kennesaw, Marietta, Powder Springs and Smyrna) in terms of the risks and vulnerabilities associated with winter storms. As a result, any mitigation steps taken related to winter storms should be undertaken on a countywide basis and include the six cities.

Education & Awareness

The Cobb County PDM Planning Committee has identified several potential methods of public education and awareness regarding hazard mitigation. All public information efforts are aimed at keeping the citizens of Cobb County fully engaged in the implementation and periodic maintenance of this mitigation plan. Many of these education and awareness tools are multi-hazard in nature and include implementing a countywide crisis alert or notification system, distribution of informational brochures or pamphlets, and public and private sector briefings and workshops.

SECTION VI - EARTHQUAKES

Mitigation Goals

Cobb County's history of earthquakes is extensive, yet the effects of earthquakes on the County have been limited. With no active faults in or near its borders, Cobb County residents typically feel the effects of earthquakes that originate from outside the area. However, considering the unpredictable nature of earthquakes and seismic activity in general, it is a hazard that must be addressed. Protecting the life and property of Cobb County residents is the main goal for this hazard.

Range of Mitigation Options

The current mitigation strategies for earthquakes reside mainly in building codes. Public education is one area that lacks great emphasis in this region. Mitigation strategies will be primarily focused on education and awareness.

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Mitigation Strategy for Earthquakes

Goal #1

Protect life and property within Cobb County and the six cities (Acworth, Austell, Kennesaw, Marietta, Powder Springs, and Smyrna) from the effects of seismic forces.

Objective #1

Educate residents and businesses in Cobb County about potential safety issues regarding earthquakes.

Action Steps

Create earthquake information materials as part of all-hazards, public awareness initiative.

Responsible Org: Cobb County
Coordinating Org: Cobb County EMA
Timeline: 2006
Approximate Cost: \$1,500.00
Funding Source: City/county staff time

Multi-Jurisdictional Considerations

No significant differences exist between the county and its six municipalities in terms of the risks and vulnerabilities associated with earthquakes. As a result, any mitigation steps taken related to earthquakes should be undertaken on a countywide basis and include the six cities.

Education & Awareness

The Cobb County PDM Planning Committee has identified several methods of public education and awareness regarding hazard mitigation. All public information efforts are aimed at keeping the citizens of Cobb County fully engaged in the implementation and periodic maintenance of this mitigation plan. Many of these education and awareness tools are multi-hazard in nature and include implementing a countywide crisis alert or notification system, distribution of informational brochures or pamphlets, and public and private sector briefings and workshops.

SECTION VII – DROUGHT

Mitigation Goals

As indicated in Chapter 2, Section VI, drought conditions can prove costly to Cobb County due to agricultural crop damage. The Cobb County PDM Planning Committee determined that little can be done to mitigate the effects of severe drought.

Range of Mitigation Goals

The Cobb County PDM Planning Committee has identified several non-structural mitigation measures in hopes of minimizing the potentially destructive effects of drought. The planning committee's focus is on the preservation of life and property, with particular emphasis on vulnerable populations and critical facilities. This may result in modifications to current policies and the implementation of local ordinances to ensure suggested mitigation measures are initiated. Specific mitigation goals, objectives and action items for drought-inflicted wildfires are as follows:

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Mitigation Strategy for Drought

Goal #1

Minimize agricultural and property losses in Cobb County resulting from drought conditions.

Objective #1

Protect critical facilities and vulnerable agriculture from the effects of drought conditions.

Action Steps

Identify vulnerable areas (i.e. farms) and develop a protective action plan.

Responsible Org: Cobb County
Coordinating Org: Cobb County EMA
Timeline: 2006
Approximate Cost: \$1,000.00
Funding Source: City/County staff time

Educate citizens and farm owners in the county about the potential negative effects that arise from extended drought conditions (Category: Education & Awareness).

Responsible Org: Cobb County
Coordinating Org: Cobb EMA
Timeline: 2005 - Continual
Approximate Cost: \$8,000.00
Funding Source: City/County staff time

Conduct feasibility study of proactive measures for Cobb agriculture to include livestock watering ponds and capturing storm water.

Responsible Org: Cobb County
Coordinating Org: Cobb EMA & Storm Water Management Division
Timeline: 2005 - Continual
Approximate Cost: \$35,000.00
Funding Source: City/County staff time

Conduct study about how to best coordinate the range of Federal support programs potentially available to support Cobb agriculture.

Responsible Org: Cobb County
Coordinating Org: Cobb EMA & Storm water Management Division
Timeline: 2005 - Continual
Approximate Cost: \$20,000.00
Funding Source: City/County staff time

Multi-Jurisdictional Considerations

Drought conditions affect all of Cobb County. Farms and other vulnerable populations are located in the six cities (Acworth, Austell, Kennesaw, Marietta, Powder Springs, and Smyrna) as well as in unincorporated areas of the county. No significant differences

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exist between the county and its six municipalities in terms of the risks and vulnerabilities associated with drought. As a result, any mitigation steps taken related to drought should be undertaken on a countywide basis and include the six cities.

Education & Awareness

The Cobb County PDM Planning Committee has identified several methods of public education and awareness regarding hazard mitigation. All public information efforts are aimed at keeping the citizens of Cobb County fully engaged in the implementation and periodic maintenance of this mitigation plan. Many of these education and awareness tools are multi-hazard in nature and include implementing a countywide crisis alert or notification system, distribution of informational brochures or pamphlets, and public and private sector briefings and workshops.

CHAPTER 5 – TECHNOLOGICAL HAZARD MITIGATION GOALS & OBJECTIVES

SECTION I – DAMS (Failure)

Mitigation Goals

An assessment of the countywide hazard posed by existing dams is needed to support the broad range of mitigation options being proposed in the FMP and also presented in the PDM Plan. There may also be additional staffing requirements for the Storm Water Management Division in order to accomplish the assessment and maintain current operations. Additional Cobb County code revisions may be required so that dam owners can be compelled to make improvements once deficiencies are identified.

Range of Mitigation Options

The range of mitigation options includes retrofitting existing dams, determining the dam breach zones below all potentially hazardous dams, regulating existing dams, and developing a reverse 911 system linked to dam breach zone mapping (data would include residential owners in the breach zones).

Mitigation Strategy

Goal #1

Minimize the loss to life and property from the existing hazard posed by potential dam failures.

Objective #1

Develop proposal to regulate protective measures for dam breach zones.

Action Steps

Inventory Cobb dams, record GPS coordinates, conduct initial assessment of dam safety.

Responsible Org: Cobb County/Cobb cities

Coordinating Org: Cobb County

Timeline: September 2009

Approximate Cost: \$55,000.00

Funding Source: Grants/Cobb County/Cobb cities

Perform field survey including dams, spillways, downstream cross section, and downstream structures within dam breach zone.

Responsible Org: Cobb County/Cobb cities

Coordinating Org: Cobb County

Timeline: September 2009

Approximate Cost: \$2,000,000.00

Funding Source: Grants/Cobb County/Cobb cities

Perform dam breach study that includes running dam break simulation model and the delineation of hypothetical dam break inundation zones.

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Responsible Org: Cobb County/Cobb cities
Coordinating Org: Cobb County
Timeline: September 2009
Approximate Cost: \$5,000,000.00
Funding Source: Grants/Cobb County/Cobb cities

Draft ordinance prohibiting development in dam breach zone to include legal review before submitting it to the Cobb County Board of Commissioners.

Responsible Org: Cobb County/Cobb cities
Coordinating Org: Cobb County
Timeline: September 2009
Approximate Cost: \$1,000.00
Funding Source: Grants/Cobb County/Cobb cities

Objective #2

Inspect and regulate existing dams.

Action Steps

Inventory all dams to include recording GPS coordinates and roughly assessing relative condition of the dam.

Responsible Org: Cobb County/Cobb cities
Coordinating Org: Cobb County
Timeline: September 2009
Approximate Cost: \$55,000.00
Funding Source: Grants/Cobb County/Cobb cities

Inspect all dams and document any deficiencies to include taking photographs, taking field measurements, and fill out a visual inspection checklist of key items.

Responsible Org: Cobb County/Cobb cities
Coordinating Org: Cobb County
Timeline: September 2009
Approximate Cost: \$35,000.00
Funding Source: Grants/Cobb County/Cobb cities

Promote Cobb County's dam (retrofit) flood storage volume purchase program with the owners of Category I dams.

Responsible Org: Cobb County/Cobb cities
Coordinating Org: Cobb County
Timeline: September 2009
Approximate Cost: \$5,000.00
Funding Source: Grants/Cobb County/Cobb cities

Implement a reverse 911 calling system based on future mapping of dam breach zones using GIS that includes a data set of homes and homeowners in each breach zone.

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Responsible Org: Cobb County/Cobb cities

Coordinating Org: Cobb County

Timeline: September 2009

Approximate Cost: \$45,000.00

Funding Source: Grants/Cobb County/Cobb cities

Multi-Jurisdictional Considerations

Presently, Cobb County's Storm Water Management Division provides services for the unincorporated portion of the county. The PDM Plan is a collateral planning initiative that promotes a collaborative effort between the county and the six cities of Acworth, Austell, Kennesaw, Marietta, Powder Springs, and Smyrna. The intent of the PDM Plan is to promote coordination of future dam hazard mitigation strategies between the Cobb Water System, Cobb EMA, and the six cities.

Education & Awareness

The Cobb County PDM Planning Committee has identified several methods of public education and awareness regarding hazard mitigation. All public information efforts are aimed at keeping the citizens of Cobb County fully engaged in the implementation and periodic maintenance of this mitigation plan. Many of these education and awareness tools are multi-hazard in nature and include implementing a countywide crisis alert or notification system, distributing informational brochures or pamphlets, and conducting public and private sector briefings and workshops.

SECTION II – HAZARDOUS SPILLS

Mitigation Goals

The PDM Planning Committee recognizes hazardous material spills as a serious technological hazard that can cause serious damage to Cobb County and the six municipalities (Acworth, Austell, Kennesaw, Marietta, Powder Springs and Smyrna). The threat to Cobb County and the six municipalities is exacerbated due to the presence of three interstate highways running through the county (Interstate 20, Interstate 75, and Interstate 285). Mitigation of this hazard is best accomplished by close adherence to rules, regulations and procedures established by the chemical manufacturers and the federal government, primarily the Department of Transportation, the Environmental Protection Agency and the Occupational Safety and Health Administration. With this in mind, the planning committee identified mitigation measures geared toward training and awareness with an emphasis placed on natural resource protection. Cobb County Fire and Emergency Services has a highly trained Hazardous Materials Response Team (HMRT) in which A, B, and C shifts at Station 8 (North team) and Station 22 (South team) each have eight State Certified HAZMAT technicians (total of 48 techs). In addition, over 400 Fire Fighters are trained at NPQ Hazardous Materials Operations Level. The HMRT operates a mass decontamination trailer capable of handling multiple patients while separating males from females. The HMRT possesses a variety of apparatus needed to deploy the team and equipment for nuclear, chemical and biological incidents. The apparatus' contain equipment used for entry (up to Level A), monitoring, decontamination, and all hazards mitigation. Most of CCFES field personnel have been trained to a HAZMAT operations level in which they can assist the HMRT in a limited function.

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Range of Mitigation Options

The Cobb County PDM Planning Committee has identified non-structural mitigation measures related to hazardous material spills. This may result in modifications to current policies to ensure these mitigation measures are instituted. No historic or special considerations pose extraordinary challenges for the community in regard to facilities that are subject to hazardous material spills. Mitigation goals, objectives and action items are as follows:

Mitigation Strategy for Hazardous Material Spills

Goal #1

Minimize loss of life and property due to hazardous material spills in Cobb County and its six municipalities (Acworth, Austell, Kennesaw, Marietta, Powder Springs and Smyrna).

Objective #1

Protect critical facilities and the general public from the effects of hazardous material spills.

Action Steps

Identify groundwater recharge areas in the county near transportation routes and assess/correct for vulnerability.

Responsible Org: Cobb Storm Water Management Division

Coordinating Org: Cobb EMA

Timeline: 2008

Approximate Cost: \$55,000.00

Funding Source: General funds/grants

Assess current resource requirements of the Cobb HAZMAT Team and Fire and Emergency Services in general.

Responsible Org: Cobb County Fire Department

Coordinating Org: Cobb EMA

Timeline: 2006

Approximate Cost: \$3,000.00

Funding Source: General funds/grants

Develop proposal identifying current resource requirements needed to maintain peak operating proficiency of the Cobb HAZMAT Team.

Responsible Org: Cobb County Fire and Emergency Services

Coordinating Org: Cobb EMA

Timeline: 2006

Approximate Cost: \$15,000.00

Funding Source: General funds/grants

Fund continued HAZMAT training and exercises to maintain the required skills, knowledge, and abilities of the Cobb HAZMAT Response Team.

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Responsible Org: Cobb County

Coordinating Org: Cobb EMA/DOT/GEMA

Timeline: 2005 - Ongoing

Approximate Cost: \$10,000.00/year

Funding Source: DOT Hazardous Materials Emergency Preparedness Grants, FEMA Hazardous Materials Training Program

Multi-Jurisdictional Considerations

Hazardous material spills have the potential to affect all of Cobb County and its six municipalities (Acworth, Austell, Kennesaw, Marietta, Powder Springs and Smyrna). No significant differences exist between the county and its six municipalities (Acworth, Austell, Kennesaw, Marietta, Powder Springs and Smyrna) in terms of the risks and vulnerabilities associated with hazardous materials. Mitigation steps should be undertaken on a countywide basis and its six municipalities (Acworth, Austell, Kennesaw, Marietta, Powder Springs and Smyrna).

Education & Awareness

The Cobb County PDM Planning Committee has identified several methods of public education and awareness regarding hazard mitigation. All public information efforts are aimed at keeping the citizens of Cobb County and its six municipalities (Acworth, Austell, Kennesaw, Marietta, Powder Springs and Smyrna) fully engaged in the implementation and periodic maintenance of this mitigation plan. Many of these educational and awareness tools are multi-hazard in nature and implementing a countywide crisis alert or notification system, distributing of informational brochures or pamphlets, public and conducting private sector briefings and workshops.

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CHAPTER 6 – EXECUTING THE PLAN

SECTION I – IMPLEMENTATION ACTION PLAN

Cobb County Emergency Management Agency was responsible for managing the PDM planning process. A consultant was hired to facilitate writing the PDM Plan and developing a central repository of the information developed through the planning process. The Cobb County Board of Commissioners will formally adopt this plan after it has been approved by GEMA. Once GEMA approves the PDM Plan, it will then be forwarded to FEMA for review. The PDM Plan will be reviewed and validated by the Executive Committee at least every six months. As required, the PDM Plan will be updated at forwarded to GEMA at least every five years.

The Cobb EMA Director shall assume responsibility for the upkeep and maintenance of the plan. The EMA Director shall ensure that the PDM Plan is used as a blueprint for initiating the identified mitigation measures within Cobb County and its six local cities: Acworth, Austell, Kennesaw, Marietta, Powder Springs, and Smyrna. The EMA Director, or designee, shall be authorized to convene a committee to review and update this plan periodically (at least annually) throughout the useful life of the plan, not to exceed five years. Through this plan update process, the EMA Director shall identify projects that have been successfully undertaken in initiating mitigation measures within Cobb County and the six cities. The planning document will reflect completion dates of all projects. When convened by the EMA Director, the committee will identify any new or additional mitigation projects that can be undertaken in the county or the six cities.

The list of mitigation-related action items was compiled by the planning committee. The mitigation goals, objectives and actions were identified and organized by goal and objective. The mitigation actions were then prioritized by what was perceived as most beneficial to the county and its six cities. Several criteria were established to assist planners in the prioritization of these suggested mitigation actions. Criteria included perceived cost benefit or cost effectiveness; availability of potential funding sources; overall feasibility; measurable milestones; and public and political support for the proposed actions. Using these criteria, several projects emerged as being a greater priority than others.

Cobb County revises its *Comprehensive Plan* annually. Consequently, when the *Comprehensive Plan* is revised, an evaluation of mitigation actions identified in the PDM Plan should be conducted to determine what should be included in the 2006 update. Relevant sections of this Pre-Disaster Mitigation Plan should be included in the next revision of the *Cobb County Emergency Operations Plan* (EOP).

Implementation strategy for the PDM Plan will also include participating in as many complementary programs as feasible. Cobb County Police, Fire, and EMA already have programs that are complimentary to the goals of pre-disaster mitigation. Some of these programs include Public Safety Explorers, Citizen's Public Safety Academy, Neighborhood Safety Commission, Citizen Corps Council, and Community Emergency Response Team (CERT). The Water System also conducts community programs that include flood-related issues. In addition, Cobb's TV23/Communications runs continual public service programming.

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SECTION II – EVALUATION

The Cobb EMA Director will ensure that the PDM Plan is updated at least every five years. The evaluation will use a checklist to determine what mitigation actions were undertaken, the completion date of these actions, the cost associated with each completed action, and whether or not the actions were successful.

The EMA Director, or designee, will maintain a schedule of regular semiannually meetings to preserve continuity and consistency throughout the review process. These meetings will provide an opportunity to discuss the progress of the action items and maintain the partnerships that are essential to sustain the mitigation plan. It should be noted that the emergence of these partnerships between the county and the cities is an important outcome of the PDM planning process.

The EMA Director will be responsible for ensuring that the results of the PDM Plan evaluation(s) are reported to the Cobb County Board of Commissioners, and to any agency or organization having an interest in the hazard mitigation activities identified in the plan.

SECTION III – MULTI-JURISDICTIONAL STRATEGY AND CONSIDERATIONS

The Cobb Emergency Management Agency is the lead agency for implementing projects such as Pre-Disaster Mitigation. Cobb County and the cities of Acworth, Austell, Kennesaw, Marietta, Powder Springs, and Smyrna, have authorized the EMA to act on their behalf. The PDM planners have identified the importance of cooperation and collaboration regarding PDM related projects.

The cities of Acworth, Austell, Kennesaw, Marietta, Powder Springs, Smyrna and unincorporated Cobb County provided the core members to the planning process. Participation from each jurisdiction was solicited and provided to the Cobb Emergency Management Agency. As a result, a truly multi-jurisdictional plan was created for Cobb County with all participants contributing to the PDM Plan. A positive outcome of this process was the strengthening of intra-governmental relationships between the various departments that provided information and the Cobb EMA.

SECTION IV – PLAN UPDATE AND MAINTENANCE

In accordance with the requirements set forth in the Disaster Mitigation Act of 2000, Cobb County is required to review the PDM Plan annually and revise the plan every five years. At the direction of the EMA Director, the Cobb County Pre-Disaster Mitigation Planning Committee can be reconvened in order to accomplish this revision. The revision process will include a schedule, timeline, and a list of the agencies or organizations participating in the PDM Plan revision. The mitigation goals, objectives and action items will be reviewed to determine their relevance given the changing situations in the county, the state, or federal policy. The risk assessment portion of the plan will also be reviewed to determine if this information should be updated.

Cobb County is committed to having active public participation during reviews and updates of the PDM Plan. During future plan revisions, the committee will conduct, at a minimum, one public hearing toward completion of the revision process. These hearings

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will provide an official forum giving the public to provide an opportunity to offer input to the PDM Plan.

Cobb EMA will maintain documentation that captures any public participation in the PDM review process. This documentation may include newspaper clippings reflecting the advertised public hearing notice, sign-in sheets, meeting minutes, etc. This information will be specifically identified in proposed plan revisions forwarded to GEMA and FEMA.

The EMA Director will also present PDM Plan revisions to the Cobb County Board of Commissioners for formal adoption. A current distribution list for the PDM Plan will be maintained to ensure that revised versions of the Plan are properly distributed.

By conclusion of the five-year period following initial approval of the plan, the EMA Director shall be responsible for submitting a revised Pre-Disaster Mitigation Plan to the Georgia Emergency Management Agency and the Federal Emergency Management Agency for their review.

CHAPTER 7 – CONCLUSION

SECTION I – SUMMARY

The Cobb County EMA will document all future hazardous events. As a result of the PDM planning process, Cobb County has compiled a central repository of information and knowledge regarding:

- The county's disaster history
- The presence of natural and technological hazards
- The likelihood of these hazards occurring within the county
- The potential impacts and challenges these hazards present to the community

The PDM planning process followed established GEMA/FEMA guidelines. It began with the identification of hazards that have occurred within Cobb County over the past fifty to sixty years. This was followed with the identification of critical facilities within the County and six cities of Acworth, Austell, Kennesaw, Marietta, Powder Springs, and Smyrna. Vulnerability assessments of various hazards were then made that included potential hazard-specific losses. After evaluating potential losses within the county/cities, mitigation goals, objectives, and related action items were then developed and prioritized. The PDM planning process served as the mechanism for crafting the PDM Plan.

The planning initiative was preceded by formation of the planning committee. The Cobb County Board of Commissioners tasked the planning committee to develop the PDM Plan. Two public hearings were held to afford Cobb County and local citizens the opportunity to provide input to the PDM Plan. The first was held on January 11, 2005 and the second on January 25, 2005.

PDM planners found that it is often difficult to predict the potential threats from some hazards. Tornadoes and other types of severe weather may strike randomly. The hazards may affect a small, localized area or blanket the entire county, affecting all

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businesses, public facilities, and residents within. Recognizing this uncertainty, the PDM planners proposed both general and specific measures to aid in the mitigation of the natural and technological hazards most likely to impact Cobb County. These measures include, but are not limited to, the protection of public facilities and infrastructure, proposing progressive government policies, and the proactive use of codes and regulations.

In summary, the mission of the Cobb County Pre-Disaster Mitigation Planning Committee is to make Cobb County and the cities of Acworth, Austell, Kennesaw, Marietta, Powder Springs, and Smyrna less vulnerable to the effects of natural and human-caused hazards through effective and efficient planning, hazard risk assessments, and a coordinated, feasible mitigation strategy. The PDM planners believe that this plan, when properly implemented, will help to make all of Cobb County a safer place to live and work for all of its citizens.